# The Journal of the American Medical Association

**Published under the Auspices of the Board of Trustees.**

VOL. XXXVIII. CHICAGO, ILLINOIS, JANUARY 25, 1902. No. 4.


## Original Articles.

### THE DIAGNOSIS OF SMALLPOX.*


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During epidemics of smallpox the anticipatory attitude of the physician's mind will often lead him to suspect as variola diseases which bear only a superficial resemblance to it. Contrariwise, in the absence of epidemic prevalence of smallpox, mild cases are apt to be overlooked. The latter error is much the more serious in its consequences, although the former may itself lead to embarrassing complications.

The detection of smallpox in its pustular stage, particularly in well-marked eruptions, is a facile matter even for the merest tyro in medicine. The picture of a profuse pustular variola can scarcely be mistaken for anything else. The diagnosis of the disease, however, in the first or second day of the eruption in mild cases, and especially in the absence of an epidemic, may present perplexities. Before the appearance of the eruption the diagnosis is difficult and often impossible. It may be surmised, but it is seldom safe to affirm anything beyond a strong suspicion. The writer recently saw an unvaccinated young man who was suddenly taken ill with fever, headache, backache, chills, vertigo and vomiting—a syndrome perfectly characteristic of the initial stage of smallpox—yet the patient did not develop the latter disease.

There is some variability in the character of the initial symptoms of smallpox. The symptom which most frequently announces the onset of the disease is a chill. This may be severe, accompanied by chattering of teeth, or it may consist merely of a succession of creepy sensations. In many patients the initial symptom complained of is headache. This is often referred to the frontal region and may be of an excruciating character. At other times it is moderate and in mild cases may be entirely absent. In still other cases severe and persistent vomiting is the first manifestation. In such patients the diagnosis of acute gastritis has occasionally been made. The vomiting may be accompanied by diarrhea. Some patients describe the earliest symptoms as general muscular and joint pains with, especially, involvement of the knees.

Some cases begin with severe backache and weakness of the lower extremities. Backache, however, is an inconstant symptom and is perhaps absent in 30 or 40 per cent. of cases. It is said to be more frequently present in severe than in mild cases, and in hemorrhagic smallpox it is apt to be violent in intensity. Very many patients, even in mild attacks, complain of vertigo; this is particularly manifest upon the patient's assuming the vertical position. Some patients, during the last days of the period of incubation, develop a more or less sudden loathing for food, and this complete anorexia may continue for some days. The initial fever may reach 104 or 105 even in cases which prove to be mild. High temperature is apt to be accompanied by delirium and in children by convulsions.

The above prodromal symptoms vary greatly in intensity. In unvaccinated cases they are usually severe. On the other hand, in mild cases the symptoms may be so insignificant as barely to attract the patient's attention. In the vast majority of cases a fairly satisfactory history of the initial symptoms will be volunteered by the patient. In other cases close and specific interrogation of the patient will often recall to him forgotten symptoms.

In an analysis of the initial symptoms in 100 cases recently admitted to the Municipal Hospital the various manifestations were present in the following percentages: Headache was present in 86 per cent.; chills were present in 78 per cent.; backache was present in 70 per cent.; vertigo was present in 57 per cent.; vomiting was present in 55 per cent.; nausea without vomiting was present in 10 per cent. more of cases. In but two patients was there complete absence of an initial stage.

Information as to exposure to smallpox and the character of the patient's vaccine condition are important factors in an early diagnosis. Too often the importance of the knowledge imparted by the character of the vaccination scar and the date of the vaccination is underestimated. If a patient presenting suspicious symptoms of smallpox shows a typical scar from a vaccination performed within a few years, this constitutes strong presumptive evidence against smallpox.

During the initial stage smallpox may be confounded with typhoid fever, meningitis, influenza, typhus, scarlet fever, measles, etc. A number of patients during the present epidemic were suspected during the initial stage of having *typhoid fever,* and the closely scrutinized abdomen exhibited what was at first thought to be "rose spots," but which later proved to be variolous papules. The sudden onset of high fever, the tendency to vomiting and the well-marked backache will usually cause one to suspect something other than typhoid fever. However, in atypical cases the symptoms may be strongly suggestive of the above-mentioned disease.

Both variola and meningitis may be characterized by intense headache, vertigo, vomiting, delirium, coma and convulsions. Without localizing symptoms the latter

* Read in substance at the meeting of the Northern Branch of the Philadelphia Medical Society, Dec. 19, 1901. For discussion see Society Proceedings.

disease might for a few days be difficult to exclude. *Influenza* may closely simulate the early symptoms of smallpox and indeed time may be the only factor to differentiate the two diseases.

The true eruption of smallpox is occasionally preceded by a prodromal rash which may be morbilliform, scarlatiniform or purpuric in character. These usually make their appearance about the second day of the initial symptoms, but may occur either earlier or later than this period. The purpuric form consists, as a rule, of small pinhead-sized petechiæ, often closely crowded together upon an erythematous base, and occupying as favorite regions the lower part of the abdomen, the genitalia and the upper parts of the thighs. The morbilliform and scarlatiniform eruptions may also occupy these regions or may be diffusely scattered over the body surface. Welch states that these rashes have, in his experience, occurred more frequently in varioloid than in severe smallpox. Recent observation of a dozen or more such eruptions tends to confirm this view.

The morbilliform rash may be mistaken for measles, with which eruption it has much in common. I am inclined to think that, as a rule, there is less elevation of this eruption than in that of measles, the finger passed over it often failing to detect the maculæ. The rash ordinarily disappears in from twelve to twenty-four hours. Measles may also be confounded with the beginning true variolous eruption. These lesions are, however, smaller than those of measles, are never shotlike, and are disproportionately profuse on the face and hands. There is absence of the catarrhal symptoms affecting the bronchi, nose and conjunctiva; absence of the more or less characteristic lesions of the buccal mucous membrane, and furthermore a remission of the febrile symptoms on or shortly after the appearance of the eruption. The last-named phenomenon and the absence of early tonsillar and throat symptoms will help to distinguish smallpox from *scarlet fever*.

In the eruptive stage smallpox may be confounded with chicken-pox, syphilis, impetigo contagiosa, pustular acne and drug eruptions.

*Differential Diagnosis.*—Smallpox may be distinguished from chicken-pox by attention to the following data:

1. Prodromal symptoms: Fever, headache, backache, chills, vertigo, nausea, etc., occur two or three days before the outbreak of the variolous eruption. In exceptionally mild cases, however, these may be slight or even absent. In chicken-pox the fever and the eruption appear practically synchronously. The constitutional symptoms are more severe in smallpox.

2. Distribution of eruption: In smallpox eruption involves with predilection face, arms, hands and legs; upon the trunk the lesions are more sparse. In chicken-pox the eruption is most profuse, as a rule, upon the trunk, chiefly the back. Smallpox prefers the exposed surfaces, chicken-pox the covered.

3. Character of the lesions: In smallpox they begin as firm, "shotty" papules, which slowly increase in size and develop into vesicles and pustules. Vesicles are uniform in size and often show umbilication. They are multilocular and difficult to rupture with the finger-nail. Chicken-pox lesions begin as "dewdrop-like" vesicles which have a velvety feel. They are unilocular, thin-roofed, can be easily ruptured with the finger-nail, and vary greatly in size.

4. Manner of eruption: Chicken-pox eruption comes out in successive crops, and the lesions may be seen in varying stages of development. Smallpox eruption comes out in a single crop and the lesions remain uniform in character. Smallpox lesions undergo a gradual evolution from papules to crusts in the course of eight to ten days. Chicken-pox lesions last one or two days and then crust. In the mild smallpox epidemic of 1896 the lesions maturated more rapidly than in the old-time smallpox, but the course of the eruption was nevertheless much longer than in varicella. The extent of the eruption is no absolute guide in the differential diagnosis. Severe cases of varicella may look far more formidable than mild cases of variola. The writer has seen undoubted smallpox in unvaccinated individuals, with but two or three lesions present, and the general symptoms correspondingly mild.

*The pustular syphiloderm*, particularly that variety known as the variolaform syphilid, may at times present a striking resemblance to smallpox, and may require careful study to be differentiated therefrom. During epidemics of smallpox such cases are frequently regarded as variola. These pustular eruptions are not always the first cutaneous manifestations of the disease, but often follow upon the macular or papular syphilids. They may occur about the second month to the first and second year of the disease. They are more common in negroes than in whites, and in the debilitated and undernourished than in robust individuals. In syphilis one may obtain information concerning the initial lesion and perhaps an antecedent eruption; also the presence or former existence of mucous patches, alopecia, tonsillar ulceration, iritis, remains of chancre, etc. In smallpox there may be a history of exposure to the contagion of variola.

Prodromal symptoms: This complex of symptoms is well marked in smallpox two or three days before the appearance of the eruption. In the pustular syphiloderm there may be moderate fever and general aches and pains preceding by several weeks the outbreak of the eruption. On the one hand there is no such remission of the febrile symptoms on or shortly after the appearance of the cutaneous efflorescence as is seen in smallpox, and on the other hand the constitutional disturbance during the prodromal period and later during the eruptive stage is much less severe and prostrating. Patients with a pustular syphilid are not apt to seek their beds.

Eruption: The syphilitic eruption comes out in successive crops; it may or may not be more extensive upon the trunk than upon the face. The papules are often firm, but are apt to acquire vesicopustular summits rather than become vesicular or pustular in their entirety. They never progress to those large, full, deep-seated pustules which are so characteristic of variola. The vesicopustules dry into small, brownish crusts which when cast off disclose to view infiltrated, elevated papules or at times exulcerated bases. Often a little epidermal collarette is seen, showing beginning desquamation of the base of the lesion. The lesions are not invariably uniform in size, and often papules and pustules are interspersed. Occasionally there is a tendency to grouping, which is best noted about the alæ of the nose, commissures of the mouth, border of the hair, etc. The palms of the hands and soles of the feet which are so constantly beset with lesions in smallpox are rarely attacked in the pustular variety of syphilis. In six cases of variolaform syphilid, the writer has seen palmar lesions in but one case, and in this patient a solitary vesicle was seen upon the thenar eminence.

This is quite in contrast with many other eruptions of syphilis, which are commonly seen upon the palms. The eruption of syphilis, as a rule, pursues a distinctly slower course than that of smallpox. The itching which is sometimes present in variola is usually absent in syphilis.

Despite these differentiating symptoms, there occur at times cases which defy even the experienced eye to make an immediate diagnosis. Observation of the patient for a few days will disclose the true nature of the disease.

A confounding of smallpox with *impetigo contagiosa* can come only from a misunderstanding of the nature of the latter disease, which is a purely local dermatosis resulting from inoculation of the skin with pyogenic micro-organisms. The eruption is usually limited to the face or the face and hands, and is particularly common in children. The lesions do not, as a rule, exceed a dozen in number, and general febrile symptoms are of great rarity. The lesions are from the outset thin-roofed vesicles or blebs, which rapidly become turbid and dry into yellowish flat crusts. These are cast off in the course of a week, leaving a faint reddish stain. The vesicopustules are extremely superficial and flat and not at all infiltrated. The affection is both contagious and auto-inoculable by contact, and is particularly common in children.

Extensive *papular and pustular drug eruptions* at times simulate smallpox, but may usually be differentiated by the absence of the characteristic constitutional and local symptoms of the latter disease.

Mild cases of varioloid exhibiting but a few papulopustules about the face may bear a close resemblance to *acne*. The history of exposure, the existence of an initial stage and the normal evolution of the lesions will usually enable one to arrive at a correct diagnosis.

The same data are of differential importance in excluding papulo-pustular eruptions occasionally produced by ingestion of the iodids and bromids.

In conclusion it may be stated that it is injudicious to base a diagnosis of smallpox upon any one symptom. A case must be viewed in all its aspects and a diagnosis made from the *ensemble* of symptoms.

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## VACCINE VIRUS—ITS PREPARATION AND THE COMPLICATIONS ATTENDING ITS USE.*

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The history of vaccination and its adoption as a prophylactic measure are too well known to need repeating here. The evolution of the vaccine virus is, however, another matter, on which a striking lack of information seems to exist among some of the most practical members of the profession, and I feel that in addressing you upon this subject I may arrange the matter in a new and suggestive form for your subsequent reflection if I contribute no new facts to your store of knowledge.

1. *The Relation of Vaccinia to Variola.*—This has been the subject of arguments from the very inception of Jenner's theory that cowpox protected against smallpox, and there is still some lack of uniformity in the opinions of different writers. Without entering into details, the relationship stands somewhat as follows:

A century ago, when everybody expected at some period of his life to have smallpox, and smallpox was more or less prevalent all the time, outbreaks of the disease among men were accompanied by occasional outbreaks among the domestic animals of peculiar affections, usually of a vesiculo-pustular form, not seen at the present time with any frequency. These diseases of the domestic animals—cowpox, sheep-pox, etc.—usually occurred at times when smallpox was active in the community, though they occasionally occurred spontaneously and may rarely do so at the present time. The vesiculo-pustular course of these affections, and the partial resemblance which the lesions bore to those of smallpox, gave them their names, sheep-pox, cowpox, etc., though I am not aware that before the time of Jenner very much consideration was given them.

You are all familiar with the current opinion of the day that having cowpox protected against smallpox and the experimental way in which Jenner went about proving the truth of the statement, so I will pass over this historic matter to take up the experimental aspect of the subject.

If cowpox is smallpox in the cow, we should be able to produce it at will by inoculating cows with the virus of smallpox. When the attempt to do this is made, however, failure to produce smallpox usually results. The variolated animal usually shows no reaction following such an inoculation, or there forms upon the udder a small nodular swelling without any of the typical characteristics of cowpox. If a drop of serum be squeezed out of this enlargement and transferred to a human being, he becomes variolated; if it be transferred to another cow, it produces an identical lesion. Occasionally, however, such a transfer of variolous matter is followed by the formation of a typical cowpox vesicle which readily infects other cattle, and also produces vaccinia in man. Jenner knew that cowpox seldom resulted from the variolation of heifers, and believed that the best way to originate the cowpox was to inoculate a heifer with the matter secured from horsepox or "grease," which would start it very well. When once the cowpox was secured, its propagation upon cows or human beings was unattended with difficulty of any kind.

We must now inquire why, if cowpox and smallpox are so closely related to one another, there should be such difficulty in originating the one affection from the other, and to explain it we must resort to the known facts of immunity in regard to other diseases. We find certain animals to be susceptible to diseases common to their own kind, partially susceptible to diseases of animals of related kinds, rarely susceptible to diseases of very different kinds. We find that the susceptibility of animals is not only subject to this generic or family variation, but that there is some variation among animals of the same kind.

We also know that micro-organisms vary in their virulence so that they most successfully infect those animals in which they are accustomed to grow, often failing to develop, or developing under such abnormal conditions in other animals that their manifestations are entirely changed.

When we come to apply these principles to vaccination we find that the germ of smallpox develops best in man and that smallpox is, par excellence, a disease of man. We find that some of the lower animals, if brought into intimate contact with human smallpox, acquire disease which may or may not closely resemble it. Thus, mon-

* Read at the meeting of the Northern Branch of the Philadelphia Medical Society, Dec. 19, 1901.

keys suffer from "monkey-pox," which they acquire by contact with smallpox, and which is somewhat like it; sheep acquire *ovinia* or sheep-pox, which is much less like it; horses' *"grease,"* or horsepox, which is still less like it, and cows *vaccinia*, or cowpox, which is a local disease of the teats and udders.

We find that whereas all of these diseases may appear spontaneously in the lower animals, sometimes associated with smallpox of men, sometimes independently of it, it is very difficult to produce them experimentally because we are endeavoring to make a micro-organism pathogenic chiefly for men, grow in animals which under normal conditions resist it. The occasional successes attending the experiments, and the occasional spontaneous occurrence of the affection being accounted for as the accidental infection of animals which happen to be below the average in their vital resistance.

We know that when once the disease is established, its propagation is easy, and that its character is so changed that when the germs are returned to the human being they cease to produce variola or smallpox, but continually produce vaccinia or cowpox. Why is this?

The only explanation for it is that the development of the germs in the new soil is attended by such difficulty that they become modified or subjected to permanent biological changes by which their original pathogenesis is lost. Such modifications, or rather, somewhat similar alterations of virulence are matters of everyday experience in the laboratory of bacteriology.

We find, therefore, that the facts of the case are thoroughly in accord with those of immunity, especially when we add that when the variolous material with which vaccinia is to be started in a cow, is first made to pass through a monkey, it becomes prepared or modified so that its growth in the cow usually succeeds the very first time instead of only after repeated attempts.

2. *Why should Vaccinia protect against Smallpox even though their Ancestry be the same?*—It is a fact common to all of those infectious diseases which leave immunity behind them, that mild attacks afford immunity which may be as complete and as permanent as serious ones. The original prophylactic measure against smallpox, the *"inoculation"* or "variolation," introduced into western Europe in 1718 by Lady Montague, wife of the British ambassador to Turkey, was based entirely upon the fact that a mild attack of smallpox was protective against the most serious possible infection. Variolation consisted in the actual inoculation of smallpox matter into the patient. In order that the attack might be as mild as possible, it was performed, if feasible, only when the individual was in the best possible health, and with matter taken from some exceedingly mild case of smallpox. The usual effect was a mild attack of the disease, but it was smallpox, and the patient sometimes died instead of becoming immune, and was always a source of infection to those about him; hence this could not be regarded as a very favorable mode of prophylaxis and was later quickly superseded by vaccination.

It is another fact of immunity that modified germs of disease, or even the toxic products of their metabolism can be followed by protection against their more active fellows.

It was this principle that Pasteur used in his protective inoculations against anthrax, and which Arloing, Cornevin and Thomas employed in protecting animals against black-leg. In the former case the anthrax bacilli were attenuated by heat until their dangerousness was so lessened that they could be introduced into animals without harm; in the latter case the bacilli were attenuated by drying. In both cases the results were the same, and the introduction of the modified germ into the healthy animal was succeeded by an immunity to the virulent organism.

Vaccination rests upon this foundation. The germs of smallpox, by being compelled to grow in the cow, have lost some capability of which they were formerly possessed and by which they were able to disseminate themselves throughout the body and produce variola, and are obliged because of this loss to grow locally and produce vaccinia, but the change induced in the body by the progress of the vaccine disease is sufficient to protect it in the future against the unmodified variola germ.

3. *Human Virus, its Advantages and Disadvantages.*—The original vaccinations were all made with virus secured from the pustule upon a human being, and propagated from human being to human being. This method is said to possess two advantages: 1, the vaccinations commonly "take;" 2. the immunity secured is more permanent than that secured by the employment of any other kind of vaccine.

Against these advantages, to which the older practitioners cling tenaciously, is the very serious disadvantage that satisfactory and safe material is very hard to secure, and in the event of a bad selection of material being made, the danger of inoculating some other and more serious disease than vaccinia is great. We read of terrible disasters in the past being caused by accidents of this kind, all the children of a certain village in France having on one occasion been inoculated with syphilis in this way.

It is well known that micro-organisms exist in immense numbers in the human scab, and that they are not all harmless. It is a principle of bacteriology that when micro-organisms are frequently transplanted from animal to animal of a kind for which they are pathogenic, their virulence rapidly increases and their manifestations intensify. Thus it comes about that when a few cocci, that under ordinary conditions are harmless or mildly pathogenic are contained in a scab used to vaccinate a child, they grow better in this child than in the former child and produce an exaggerated lesion. When transplanted once or twice more, they become still more virulent until they ultimately become able to occasion abscess, phlegmon, erysipelas, septicemia and even death. Thus, through purely natural means what is a comparatively insignificant operation may by the transmission of various micro-organisms pathogenic for human beings, become a source of the gravest danger. Such dangers certainly outweigh either the advantages of the certain "takes" or more permanent immunity, and it is truly gratifying that at the present time the old method has been abandoned for the newer bovine virus.

4. *Bovine Virus.*—The continuous propagation of vaccine virus from heifer to heifer is said to have originated with Negri of Naples about 1842, and to have required about forty years for its advantages to be so widely appreciated as to permit its introduction into most of the European countries and our own as well.

The advantages of the bovine virus are almost beyond dispute. The vaccinia is kept growing in animals for which it is natural, and in which it can be supposed to maintain its most natural degree of virulence. It is secured from animals whose healthy condition can be

determined beyond any doubt, and from animals in which the dreaded human diseases can not occur. The micro-organisms contained in the bovine virus are nearly all of forms which produce no disease of man. There is no possibility of the transmission of syphilis, and no probability of erysipelas, gangrene, septicemia or other of the affections referable to human virus.

PREPARATION: In every well-regulated vaccine establishment some modification of the following routine is carried out: Small calves or heifers are received in a special part of the establishment and subjected to a careful toilet. They are curried and brushed, the hoofs trimmed and the feet washed. The entire skin is then washed very thoroughly, a disinfectant usually being employed, then washed out with sterile water. After remaining until the time for operation in a warm stable, they are next taken to a modern operating room, strapped to a table, and shaved over both thorax and abdomen. The skin is washed with soap and water, then with a disinfectant solution, and finally with sterile water, after which the hairy parts are covered with sterile towels and the denuded skin dried. Scarifications more or less extensive, according to the taste of the operator, are next made through the superficial layers of the skin, no blood being drawn, and the virus is rubbed into the scarified area with a spatula.

After this the animal is transferred to the hospital of the institute to await the development of the vesicles. Scrupulous cleanliness must be observed in the hospital, and the temperature should be carefully taken and every precaution adopted to keep the calf well and its lesions free from secondary infection. After the lapse of about six days the vesicles are "ripe" and along the lines of scarification elevated grayish-yellow vesicles covered with macerated epithelium appear. When ready for the removal of the pulp, the calf is again taken to the operation room, placed on the table, given a thorough toilet, and dried. The operator then removes the "pulp" covering the vesicles with a moderately sharp curet, again being careful to draw no blood. The material thus collected is the "vaccine pulp." Different producers employ different methods in utilizing this material. Some reject all the superficial material as unfit for use and collect the clear lymph which subsequently exudes, but the majority use the pulp itself, either spreading it upon points or mixing it with glycerin.

It is evident to anyone possessed of even a small amount of bacteriological knowledge, that in spite of the precautionary measures mentioned, it must be impossible to secure sterile pulp. Indeed, every vaccine contains three classes of micro-organisms: 1. Those specific for vaccinia. 2. Those normally living upon the skin of the animal. 3. Those accidentally entering from the dust of the stable. As a rule, all forms are harmless, but it is only those of the first class that are desirable, for whether they are usually harmless or not, it is doubtful whether any well-informed physician of the present time would prefer to introduce into his own tissues or those of his patients any unnecessary micro-organisms.

IVORY POINTS AND GLYCERINIZED VIRUS: The ivory point, spread with the pulp or with the exuding lymph below it is a device which was so far superior to the "scab" that it met with a world-wide reputation and approval, but it is subject to disadvantages that must be mentioned now that still better preparations are before us. The ivory point is spread with matter rich in bacteria. It is true that many bacteria are killed by drying, but it seems equally true that most of those clinging to the ivory remain alive, probable because of the film of albumin with which they are surrounded. At all events, the death of the bacteria takes place so slowly that the vaccine organism itself dies before the bacteria, and they are never gotten rid of.

Seeing this disadvantage, Dr. Moncton Copeman in 1891 devised the method of mixing the pulp with sterile glycerin of first quality, by which the contained bacteria were slowly destroyed, while the vaccine organism, whatever it is, remained alive. Copeman recommended the method in unqualified praise as being the method by which the bacteria can be destroyed and the vaccine organism preserved.

There are great advantages in this method, for it is eminently desirable that the bacteria be destroyed and it is very gratifying to note that the profession is sufficiently awake to these advantages to now demand them.

There are, however, certain disadvantages. The resisting power of the vaccine organism is insufficient to enable it to endure the action of the glycerin much longer than the bacteria, and by the time that the bacteria are destroyed its own vitality is threatened. For this reason, virus is usually placed on sale while it still contains a few bacteria, thus, to a limited extent defeating the very object in view. However, all must admit that it is better to have a few than a great many bacteria in the virus.

Antiseptic viruses are sold by some producers. They are made by the addition of a germicide to the virus, so that the bacteria are destroyed and the vaccine organism uninjured. This form of virus can still be regarded as in an experimental stage.

*The Accidents and Complications of Vaccination.*—These can only be touched upon in a general discussion of this kind. They have been very important and serious in the past, but are few in number and usually unimportant at the present time. During the "human vaccine" period, syphilis, erysipelas, hospital gangrene, abscess, phlegmon, septicemia, pyemia, and numerous other infectious processes were reported.

With the development of the new technic and the general use of "bovine virus," these were all fairly well eliminated, the only survival of such complications being in the practice of careless physicians who forgot that vaccination is a surgical operation and should be performed with all the precautions attending operations, or in patients who wilfully or ignorantly disregard instructions and take no care of the open wound caused by the operation.

The possibilities at the present time, given in what seems to be their order of frequency are: 1, infection from the skin of the patient; 2, secondary infection of the vaccine wound; 3, infection from the virus.

1. The skin of the patient may be infected with various organisms other than the ubiquitous skin cocci and their occasional presence should warn every vaccinator of the necessity of carefully and thoroughly cleansing and disinfecting the skin before operating—the disinfectant, of course, to be carefully removed.

2. The vaccine wound must be protected from contact with the underclothing, fingers, wash-water, dust, etc., lest secondary infection add its effects to the lesion already existing. The satisfactory method of doing this has not yet been devised. In all probability a simple dressing of sterilized gauze will do as well as anything. Shields are to be carefully avoided as being unclean, irritating, obstructing the lymphatic circulation and producing anaërobic conditions suitable for the growth

of pathogenic bacteria such as the tetanus bacillus.

3. The virus itself if not properly prepared, or perhaps occasionally through unavoidable accident may contain infectious organisms. The most important of these are the skin cocci which occasion severe local lesions, and the tetanus bacillus which has done considerable mischief of late.

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## REVERSIBILITY OF ENZYMES, AND ITS APPLICATION TO PHYSIOLOGIC AND PATHOLOGIC PROCESSES.*

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Ordinary chemical reactions with which we are most familiar are usually considered as occurring in a very definite manner, the addition of one substance to another leading to the formation of one or more new substances. But it is also a fact that if the proper conditions are produced such a reaction can be made to take place in a reverse manner, the resulting substance or substances being made to yield the substances from which they were originally produced. Recent work has developed the fact that enzyme action is also capable of reversibility, so that when proper conditions exist the products of the hydrolytic splitting, if such has been the change, are reunited by the same enzyme that separated them into the original, more complex molecule. This newly observed property is probably destined to explain many important problems in physiology and pathology, and as so far the literature dealing with the subject has been quite closely limited to technical chemical publications it has seemed desirable to review the work so far done, and to discuss the speculations into which it leads.

Schmiedeberg[1] had a demonstration of the reversibility of enzymes before him twenty years ago, but while observing the facts he did not interpret them as we now should. He observed not only that renal tissue was able to cause benzoic acid and glycocoll to unite when a mixture of these two substances was brought into contact with it, forming hippuric acid, but also that it was capable equally of splitting hippuric acid into benzoic acid and glycocoll. The splitting of hippuric acid he attributed to a ferment which he succeeded in extracting, and which he called *histozyme*. But he not only did not consider that the histozyme caused the formation of hippuric acid from the two components, but even stated that absence of histozyme was a requirement for this synthesis, which probably was due to some other agency.

The credit for actually appreciating the reversibility of enzyme action belongs to A. C. Hill.[2] He approached the subject with the express purpose of testing the possibility that enzyme action was reversible, as simpler chemical reactions were known to be. As a suitable object for investigation he selected maltose, because each molecule of this sugar is split up by the enzyme *maltase* into two molecules of glucose, and not into two dissimilar molecules as is the case in so many hydrolytic cleavages. It was known that when maltase acts upon maltose in solution a certain amount of the sugar is split up into glucose, but not all of it, so that the result is a mixture of maltose and glucose. Hill found that a similar final result was obtained if the maltase was added to a solution of glucose, for then some of the glucose molecules united to form maltose. Here again the reaction was never complete, and further investigations showed that if all conditions were made similar the final result in either case was the formation of a mixture of the two sugars with a certain definite proportion of each kind. In other words, the action of the enzyme terminates when the enzyme-containing solution holds a certain definite proportion of each sugar. If placed at first in a solution of this composition it would cause no changes whatever. Thus it is seen that the action of the enzyme is merely to establish an equilibrium, and it accomplishes this by causing either cleavage or union as the need may be.

Such a reaction may be expressed graphically as follows:

$$C_{12}H_{22}O_{11} + H_2O + \text{maltase} \rightleftharpoons 2C_6H_{12}O_6 + \text{maltase}.$$

The double arrow indicates that the reaction occurs in either direction. The reaction of histozyme might similarly be expressed:

$$\underset{\text{(benzoic acid)}}{C_6H_5\text{-}COOH} + \underset{\text{(glycocoll)}}{NH_2\text{-}CH_2\text{-}COOH} + \text{histozyme} \rightleftharpoons$$

$$\underset{\text{(hippuric acid)}}{C_6H_5\text{-}CO\text{-}NH\text{-}CH_2COOH} + H_2O + \text{histozyme}.$$

As the enzyme action tends always to bring the solution to an equilibrium, anything interfering with the attainment of an equilibrium will cause a continuance of the action, if needs be, until complete exhaustion of one of the substances. This is what takes place in digestion. The non-absorbable sugar is split up into absorbable sugars which are removed by the circulatory fluids as they pass through the intestinal walls, and as it therefore becomes impossible for an equilibrium to be established, the cleavage continues until all the sugar in the intestine has undergone cleavage and its diffusible products have been absorbed.

### LIPASE.

More recently our knowledge of reversible enzyme action has been enlarged, and its application to biologic problems begun by the valuable work of J. H. Kastle and A. S. Loevenhart[3] of the State College of Kentucky. Their work was done with *lipase*, the fat-splitting ferment of the pancreatic juice. For reasons of technical convenience they utilized ethyl-butyrate, but lipase acts alike on all fats and the results obtained are applicable to the fats of common food and tissues. They demonstrated that lipase is able not only to split up fat into fatty acid and alcohol, but also to unite the two latter to form fat. Like the action of maltase, the direction of the reaction depends upon the establishment of an equilibrium, and the result is always a mixture of fat, fatty acid and alcohol. For all cases, then, lipase action may be represented by this equation:

$$\text{Fat} + \text{lipase} + \text{water} \rightleftharpoons \text{fatty acid} + \text{alcohol} + \text{lipase}.$$

Through its action on butyric acid and ethyl alcohol they were able to study the occurrence of lipase in places other than the pancreatic juice. It was found to exist widely distributed in the body, in the liver, gastric mucous membranes and kidneys. In fact, the pancreas contains far less active lipase than the liver, at least in the hog, for the results obtained with an extract from the liver were nearly three times as great as a corresponding amount of pancreatic extract gave. Of especial importance, as will be seen later, is their demonstration of the presence of lipase in the mucous membrane of the small intestine. None of the tissues they studied

* My attention was first attracted to this most interesting subject by the lectures of Prof. Jacques Loeb, of the University of Chicago.

1. Arch. f. Exp. Path. u. Pharm., 1881, xiv, 379.
2. Jour. of the Chem. Society, 1898, lxxiii, 634.
3. Chemical News, 1901, lxxxiii, Nos. 2150 to 2155; and also American Chemical Journal, 1900, xxiv, 491.

failed to show a considerable lipase activity, but their researches in this direction were not numerous and it remains to be seen if there is any tissue that does not contain lipase. Even if it should be shown that certain tissues are free from this ferment, which is not probable, considering the almost universal distribution of fat, it is certain that no organ is without lipase during life, for Hanriot has shown that blood serum contains a considerable amount of active lipase. However, it is probably quite a different matter whether the ferment is in the cells of an organ or merely in the fluids circulating through it, in so far as its fat metabolism is concerned.

For other enzymes a reversible action is yet to be demonstrated, but there seems no good reason for disbelieving that it is as true for all the others as for histozyme; maltase and lipase. There is much work to be done in this direction, with good prospects for interesting results. Naturally the question suggests itself: If proteolytic enzymes are also reversible may not proteids be synthesized by acting on the products of proteolysis with the enzyme? Certainly if we assume that all enzyme action is reversible many features of metabolic processes become much simplified. And also as recent investigations tend to show the inseparability of all metabolic processes from enzymes, the importance of this added knowledge of the enzyme processes must be apparent. So far as the subject has yet been investigated, however, we are only justified in applying the results to fat metabolism.

### FAT METABOLISM.

The history of fat in the body may now be considered to be as follows: The lipase in the stomach does not act, because of the presence of hydrochloric acid. In the intestines lipolysis occurs, with production of a mixture of fat, fatty acid and alcohol—usually glycerin. But as the fatty acid and glycerin are diffusible, while the fat is not, they are separated from the fat by absorption into the wall of the intestine. Hence an equilibrium is not reached in the intestine, so the splitting continues until practically all the fat has been decomposed and the products absorbed. When this mixture of fatty acid and glycerin first enters the epithelial cells lining the intestines there is no equilibrium, for there is no fat absorbed with them as such. Therefore the lipase, which Kastle and Loevenhart showed was present in these cells, sets about to establish equilibrium by combining them. As a result we have in the cell a mixture of fat, fatty acid and glycerin which will attain equilibrium only when new additions of the two last substances cease to enter the cell. Now another factor also enters, for on the other side of the cell is the tissue fluid, containing relatively little fatty acid and glycerin. Into this the diffusible contents of the cell will tend to pass to establish an osmotic equilibrium, which is quite independent of the chemical equilibrium. This abstraction of part of the cell contents tends to again overthrow chemical equilibrium, there now being an excess of fat in the cell. Of course the lipase will under this condition reverse its action and split the fat it has just built into fatty acid and glycerin. It is evident that these processes are all going on together, and that as the composition of the contents of the intestines and of the blood vessels varies the direction of the enzyme action will also vary. In the blood serum, and perhaps also in the lymphatic fluid, although this has not yet been investigated, there is more lipase which will unite part of the fatty acid and glycerin, and by removing them from the fluid about the cells favor osmotic diffusion from the intestinal epithelium, thus facilitating absorption.

Quite similar must be the process that takes place in the tissue cells throughout the body. In the blood serum bathing them is a mixture of fat and its constituents, probably nearly in equilibrium since lipase accompanies them. If the diffusible substances enter a cell containing lipase, *e. g.*, a liver cell, the processes of building and splitting will be quite the same as in the intestinal epithelium. The only difference is that here the fatty acid may be removed from the cell by being utilized by oxidation or some other chemical transformation.

To summarize, it may be stated that throughout the body there is constantly taking place both splitting and building of fat. *Fat enters the cells, leaves them, and is utilized only in the form of its acid and alcohol, never as the fat itself. Fat constitutes a resting stage in its own metabolism.* The description given above agrees with all known features of fat absorption and utilization. For example, the crowding of the epithelial cells of the intestinal mucosa with minute fat droplets during digestion is now explained as the result of lipogenesis. That fat can be absorbed in the emulsionized state, as the older physiologists considered these droplets indicated, seems physically improbable. Such a conception is now no longer necessary. The fat depots throughout the body serve to maintain the supply to the blood, and contain lipase which here, as elsewhere, maintains an equilibrium.

If proteolytic** enzymes are also reversible, then the phenomena of proteid metabolism are similarly explained. It has long been known that between the time peptones and albumoses escape from the intestines and enter the circulatory fluids they are changed back into proteid. This fact decidedly supports the conception that an enzyme exists in the intestinal epithelium, acting reversibly on proteids just as the lipase does on fats. There is sufficient evidence to assume that so-called proteolytic ferments also are generally distributed throughout the body. Pepsin has been positively demonstrated in muscles, and Salkowski and Jacoby have called attention to a form of self-digestion which occurs in the tissues during life and also after death, termed *autolysis*, in which the chemical nature of the products of the change indicates a relation to tryptic digestion.

*All metabolism, then, may be considered as a continuous attempt at establishment of equilibrium by enzymes, perpetuated by prevention of attainment of actual equilibrium through destruction of some of the participating substances by oxidation or other chemical processes, or by removal from the body or entrance into it of materials which overbalance one side of the equation.* The living body, whether unicellular or multicellular, is a vast, unceasing series of chemical reactions.

### FATTY METAMORPHOSIS.***

Applying this fact of reversibility of enzymes to the subject of fatty metamorphosis, so-called, some interesting criticisms of recent literature may be made. Very recently C. Hester[4] made a study of "fatty degeneration" based upon the attempts of some investigators at the Rostock Institute to explain it as due to an increased saturation of the degenerated tissues with fluids from

** The term "proteolytic enzyme" will need to be replaced if it is shown that the enzymes usually referred to under that title have equally splitting and building functions. The general term "protease" might be satisfactory.

*** The subject of fat necrosis will not be considered at this time, pending the results of certain experiments now incomplete.

4. Virchow's Archiv, 1901, cxliv, 293.

the blood, the increase in these fluids in turn being due to circulatory disturbances. Hester injected olive oil into the muscles and intermuscular fascia of rabbits. It disappeared very quickly from the vicinity of normal active muscles, more slowly when the muscles were inactive. Such wandering cells as were found passing out from the site of the oil deposits contained but little fat. The muscle fibers near the injected fat showed a fatty deposit as a narrow sub-fascial zone, with some isolated fatty fibers throughout the muscle. Thus it is evident that free fat in the tissues may enter the muscle and fascia cells, and presumably other cells. An exactly similar relation was found between fat depots and fatty muscle fibers under diseased conditions in human beings by investigating fatty hearts, fatty eye muscles, and also muscles in a case of exophthalmic goiter. Here the fatty areolar tissue takes the place of the injected oil of the experiments. From his study of the manner of the transfer of fat from the interspaces into the muscle cells Hester was led to make this statement: "There can be no doubt that the fat enters the muscle fibers in a split condition, and within them is again built up into fat. The splitting of the fat is accomplished in the tissue fluids, the building within the cells." He was familiar with Hanriot's demonstration of lipase in blood serum and quite correctly attributed to it the splitting of the fat in the tissue fluids. He did not know how it was again built up in the cells, but states his confidence that it will ultimately be proven that all the cells of the body, except red corpuscles, are capable of fat synthesis. His explanation is quite complete except that he does not account for the step which lipase takes within the muscle cells.

Hester disregarded the other side of the question of fatty metamorphosis, namely, can proteid be changed into fat? This has been thoroughly threshed over by A. E. Taylor,[5] chiefly from the standpoint of investigations made upon animals by phosphorous poisoning, or by feeding various known fats. He concludes that: 1. Formation of fats out of proteid physiologically has not been demonstrated or made probable. 2. Nor has it been demonstrated under pathologic conditions; there is much evidence against this, and in favor of its being an infiltration or a formation of fats from carbohydrates. In a subsequent publication[6] he reviews his own experiments with frogs poisoned with phosphorous, in which he failed to find any evidence of conversion of proteid into fat.

Of the work in favor of the view that the so-called fatty degeneration is in reality an infiltration, the most striking is that of Rosenfeld,[7] which is quoted by Taylor. This investigator found that starved dogs, when fed on mutton fat, deposited a fat of the same composition as the fat of sheep. If such abnormally fattened dogs were again starved and then poisoned with a drug causing fatty degeneration, phloridzin or phosphorous, it was found that the fat in the degenerated liver was mutton fat. Evidently the fat had been transferred from other tissues to the liver, and was not formed there. Moreover, the liver had lost little of its nitrogen. Another investigation showed that a starved bitch, impregnated, and fed on mutton fat, yielded a milk containing mutton fat. Rosenfeld's results may be looked upon as agreeing with what we should expect to occur through the action of the lipase of the cells and the blood. If a fat rich in stearin is brought to a cell the lipase will reform it, after dissociation in the blood into a fat of the same composition, irrespective of what fat is most usual in the body of the animal. The reason that each variety of animal has its own type of fat may perchance be sought in a less ready oxidation of that fat, so that it tends to accumulate. After starvation, however, as in Rosenfeld's dogs, when a certain type of fat is provided any accumulation would necessarily at first be of that type.

Rosenfeld may fairly be said to have shown that in poisoning a certain type of fatty change, which is generally considered as "fatty degeneration," in contrast to "fatty infiltration," is really an infiltration. This renders it indeed probable that a similar explanation is to be found for so-called fatty degeneration in other pathologic conditions.

However, it has never yet been shown that proteid can not produce fat, any more than it has been shown that it does do so. If in its catabolism cell-proteid produces fatty acids and alcohol then fat will be produced, since in the cells is a ferment capable of uniting them. This much is new, and it offers a possibility to those who seek to show that fat can be formed from proteid. Still it must be observed that among the known decomposition products of proteids are no fatty acids at all comparable to those constituting the ordinary body fats. The nearest approach is in the amido-acids, such as leucin and glycocoll, but none of these contain nearly as many carbon atoms as do oleic, palmitic and stearic acids. We know as yet no enzyme capable of combining lower fatty acids into higher—certainly there is no reason yet shown for assuming that lipase does so; therefore, if proteid is really a source of fat, there must be other agencies at work than any with which we are yet familiar.

It is to be noted that the organ in which fatty metamorphosis is most often and most extensively seen as a pathologic process, the liver, contains the most lipase, so far as the observations of Kastle and Loevenhart have gone. This is quite comparable with the observation of Loevenhart[8] that the mammary gland during lactation contains much more lipase than when at rest. It seems, then, that the amount of lipase in the cells bears a direct relation to the amount of fat that will be formed in them. This may be explained by the fact that if an equal amount of fatty acid and glycerin is taken into each of two cells containing different quantities of lipase, fat will be formed more rapidly in the one with the greater amount of lipase. As the fluid bathing the cells is continuously moving from one part of the body to another it maintains nearly a constant composition, so that the amount of acid and glycerin that will diffuse into each cell will depend solely upon the amount already within the cell. Obviously the cell wherein the fatty acid and glycerin have been combined into fat will be in condition to receive more new material than will the other in which they are largely ununited, since the entrance of these substances is simply a matter of osmosis. Hence this fat-laden cell will continue to add more and more fat. This may indicate the normal mechanism of fat storage in the areolar tissue depots, which are known to contain considerable lipase.

Shall we consider from this that "fatty degeneration" is simply a matter of quantity of enzyme in the abnormal cells? It surely seems strange that a cell injured by toxic, mechanical, or nutritional agencies should possess any increase in lipogenetic power—on the contrary,

5. Amer. Journal of the Medical Sciences, 1899, cxvii, 569.
6. Journal of Exper. Medicine, 1899, iv, 399.
7. Verhandl. d. Cong. Inn. Med., 1897.

8. Proceedings of the Amer. Physiol. Soc., 1900, xli-xlii.

one would expect the lipase to suffer with the cell. This seems to be the case. A. Poulain[9] has investigated the lymph glands in health and disease with the following results: 1. In normal conditions the lipolytic power is the same in the mesenteric glands and in the subcutaneous glands at the same time in the same subject. 2. In intestinal infections the lipolytic activity of the mesenteric glands diminishes greatly compared to the peripheral. 3. The contrary relation is found when the infection is in the area draining into the subcutaneous glands. 4. In generalized infections the lipolytic power is lowered about the same in all the glands of the body. In other words, when the glands are injured by toxic substances their power is decreased. But Martin Jacoby[10] has found that autolysis, which is evidently a ferment action, is increased in phosphorous poisoning, and it may therefore be that lipase is injured by some poisons and stimulated by others. Study of lipase activity of livers that have been rendered fatty by phosphorous and similar poisons may yield interesting results.

Another factor must also be considered, namely, the process of removal of fat from the cell. This, so far as we know, is accomplished by oxidation. According to recent investigations this oxidation is also an enzyme action. May it not be, then, that poisons cause fatty degeneration only when they are of such a nature that they destroy the ferments that oxidize the fat, and do not destroy the lipase? Under such circumstances the fat equilibrium in the cell would be established when there was chemical equilibrium between the formed fat and the free components, and an osmotic equilibrium between these diffusible substances within the cells and those in the blood stream. Unlike normal conditions there would be no third factor of removal of fatty acid and glycerin by oxidation; this might lead to an accumulation. As agreeing with this idea are: 1. The fact that only certain poisons cause fatty change. 2. The association of nuclear changes with fatty degeneration, and the demonstrated fact of the importance of the nucleus for processes of oxidation within the cell (Spitzer,[11] Loeb[12]). 3. Besides, as a result of poisoning, fatty change is also a result of circulatory disturbances, as in infarction. Here impaired oxidation is recognized as a factor, and weight is given to this belief by the similarity of the processes in the chronic asphyxia of pernicious anemia and of lung disorders. There is no reason for considering that this fatty change is different from that in poisoning, i. e., they both probably indicate impaired oxidation, the one from absence of oxygen, the other perhaps from lack of enzyme to combine the oxygen. A study of both *lipase* and *oxydase* activity in normal livers and in fatty livers may determine this question finally.

9. Comptes Rend. Soc. Biol., 1901, liii, 786.
10. Zeitschr. f. Phys. Chem., 1900, xxx.
11. Pfluger's Archiv, 1897, lxvii, 615.
12. Arch. f. Entwicklungsmech., 1899, viii, 689.

**Treatment of Wandering Spleen.**—Ssaweljew describes in the *Med. Obosrenye* the successful treatment of a wandering spleen in a boy of 4 who had recently recovered from smallpox. The enlarged organ lay in the umbilical region and was painful on pressure, causing almost constant vomiting. There were also symptoms of intestinal catarrh. Treatment was directed first against the enteritis, after which euchinin was administered in order to reduce the size of the spleen. The spleen was restored to its place and maintained in position by a bandage, while the child was kept on his back in bed. A complete cure was thus attained.

# PULMONARY FEARLESSNESS.*

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From the earliest records of primitive man there are evidences of a wide range of his fears, and the noble advantages secured through the pedagogy of fear. Ere reason ascended its lofty throne, fear expressed itself through the somatic life, and with a celerity which outruns human thought still continues to protect us against threatening harm, even before we know in what the harmful thing consists. Whether originating in the soma or psyche, and however modified, fear invariably appeals to the sentiency of the breathing apparatus and exalts the pulmonary movements beyond the realms of automatism. Those fears which in primeval days prompted directly the exercise of the pulmonary sentiency or indirectly necessitated excessive activity of the lungs added to the efficiency of these organs by maintaining and cultivating their primary allotment of somatic and neural energy and became factors in the attainment of normal intercourse between the nerves distributed to the breathing apparatus and the higher centers. Hundreds of generations have regarded the respiratory organs with a reverential awe, which is the outgrowth of fear, and the ancients considered the terms "breath" and "breathing" as etymologic equivalents of "soul" and "spirit." From the very nature of his inheritance, man is at birth a pulmophobiac. The first new impulse is inaugurated through fears which are products of primal psychisms and impels the newly born to fill his lungs with air, and as he is but a reflex and automatic organism, these fears gain expression through somatic channels. The teleologic significance of this awakening of the breathing apparatus is emphasized by the oft-repeated and obvious prenatal efforts at self-protection during that portion of gestation within the range of fetal impressionability. This first betrayal of fear influence upon the pulmonary apparatus on the child's advent into independent existence, is repeated thereafter in consequence of each wavering or irregular action of the lungs. Sleeping or waking, fear guards, protects and dominates respiration, as it does no other function. Throughout the early life of those who have their proper legacy of fear, the threatened pulmonary apparatus startles like a guilty thing, as a result of limitations. Even in the semi-consciousness of dreams respiratory modifications cause the most acute alarms.

The normal child regards closed rooms and confinement within small areas as an alienation from safety. Caves, small apartments, narrow passes and dense forests produce fear effects through respiratory restraint. Fogs, gases, odors, mists, smoke, the barometric fall, each may exert an influence detrimental to perfect pulmonary activities with resulting apprehension. A personal acquaintance with fears which concern the pulmonary apparatus has been the early experience of most of us. The plays adopted usually imply the hidden foe springing upon his victim, or the imitative nature assumes the beasts of prey, and, in the simplest outbursts of juvenile enthusiasm there is an instinctive leaning toward the deep, powerful, dangerous primeval sensations, in which the breath comes in great waves or gulps. If the child were born immune to fear, he would be denied part of his pleasure-giving birthright. During childhood, and later in some cases, there is a continu-

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee of the Section.

ance of reflex and automatic organism; and the innate tendencies are best observed while the experiences are yet limited to motory and sensory impressions, and before a wider experience and the influence of environment disguise their true character.

Delicately poised in the realm of sense and possessed of just sufficient sentiency to keep them operative without causing needless pain, the perfect lungs assume their office. Influences intrinsic and extrinsic tend to blunt and ultimately overcome this delicate sentiency, and thereby interfere with their perfect functioning. In all periods of life the personal factor determines the character, rapidity and extent of the deviations; but these may be modified by the conscious need for prevention, and may be exalted by cultivation. Ignorance of these possibilities results in neglect, and decline in pulmonary sentiency is the rule.

It will be noted that in one there is a rapid, and in another a deliberate appearance of pulmonary indifference. In addition to the diminished dynamic energy of the lungs there is a corresponding increase in the self-respect of the organs. They hold other organs in smaller esteem because they are constantly inquiring of them how they are, and the pulmonary apparatus is delegated to a systematic and careful neglect. In most cases the archaic fear promptings subside after eight years of age, with a celerity that is truly alarming to the careful observer. Just about this time in life the mental influences assert themselves and demand some of the attentions which hitherto belonged to the somatic and reflex organism.

The growth which is most important and should consist in augmentation of individual parts of the body, is prematurely intruded upon by a development which is easily objectified and demands a careful solution. It must be remembered, however, in this connection that natural echoes of arcadian fears through the lung activities are only reflections of what was in the past generations and an intimation of what might be—not what is.

### STAGES OF FEAR DECADENCE.

The first stage of decadence then, which we denominate "indifference," succeeds closely upon the resurgence of the primitive fear waves as expressed in the sense repletion of childhood's daring acts and grotesque demeanor. Its sudden subsidence is the natural sequence thereto. These are all belongings of the individual through inheritance. Those influences which have to do with the pulmonary apparatus through environment, and are acquired, are of later origin. The retrocessive movement of the fear wave ceases not, but continues to a wider indifference. There is less spurtiness in the succeeding stages, and the influence toward that degree of somatic and neural delinquency, which we name "lethalization," is usually very insidious and slow, and includes the sentiency of nerve centers, as well as the innervation of the organs and the soma. This insidious invasion of the unconsciousness in organs or centers of respiration is aptly illustrated by the frog, which will allow itself to be boiled to death without moving if the heat is applied gradually enough. This unconsciousness is approached so slowly in some, and in all is so variable as to the time of its completion, that it may occur at any period of life. It is most common between pubertal age and maturity. Those of us who withstand detergent influences of these downward steps in the fear obsolescence, may at least be impressed with the fact that after puberty we can have only an acquired interest in pulmonary completeness, and that if perchance the stage of "lethalization" has passed on to that of "anesthetization," there is vouchsafed to us a fear unconsciousness from which there is no awaking, and which must lead downward to an ingravescent asthenia from whence there is no recall. This asthenia once established grows with the very life it feeds upon. It differs in degree rather than kind, from that of the fearlessness which possesses the mind, nerves and body of the victim of pulmonary consumption, who is deaf, blind and generally senseless to the clangorous harbingers of death, which are obvious to all but himself. Most of us have doubtless noticed that objective signs of pulmonary waste, failing health, and even approaching dissolution, are not only unappreciable to those upon whom tuberculosis has lain its awful hand, but through its delusions it establishes a hopefulness in realms from whence hope is normally banished. Even those subjective symptoms of consumption which would be likely to cause complaining under like conditions in other diseases, are in this disorder anesthetized out of the realm of sense. When special causes have reached so far as to affect the tissues of the blood through oxygen starvation, they guarantee a prolonged neurosal depletion, which may be observed from the slightest inaction of the nerves to radical depletion of the higher centers. One more step may yet be taken by these pitiless delusions, and bodily increase is supposed to exist where there is evident depletion, augmentation in strength where there is exhaustion, and various other imaginary gains in the presence of losses.

In this connection it must be borne in mind that fear manifestations are exceptional, and can only be expressed through other channels than those once associating the lungs with the ideational centers, and if so expressed will be tainted by entoptic chimeras and can not yield symptomatic intelligence. This false fear uprising is sometimes manifested in the presence of hemoptysis. When organs are deprived of wonted sentiency through inheritance, lethalized by indifference and palsied by disease, fears and hopes are alike deceptive—

> "Hopes thus belie our fears,
> Our fears our hopes belie."

It has been proven by every method of analysis that the stages of fear obsolescence are a part of the phenomena of lung degeneration.

To complete the symptomatology of pulmonary consumption the stage of pulmonary fearlessness is needful, and it has been regarded so common a factor in this malady that it is empirically associated with the tubercle bacillus. While we may not identify the fearless concept within the field of the microscope, it bears to the lungs as close relations as does the fear impression to the psyche or mind. Such indifference to the evidence of approaching dissolution as that exemplified by consumption, can not be a mere matter of cultivation, for no other malady so completely shuts out fear or so unwarrantably exalts hope as does pulmonary tuberculosis.

The degrees of nervous display and emotional exhibit in lung interest, show the individual relations to the danger line, i. e., in proportion to the shortening of the danger line, the hope tone is exalted; the more ample the danger line, the lower the confidence in pulmonary integrity and the deeper the fear psychoses. Each shortened oscillation is but the lessened expression of the fear element which once was the dominating factor in, and incentive to, human action; and has been a part of the complex of every life since primeval days.

To recapitulate: Fear gives its most natural and wholesome impulse at the termination of child life

through the bodily organism, and it continues, though dimmed and made fainter through the ages, its quiet and persistent influences without our aid until that stage of extinction is reached which presents the other extreme, viz., "fearlessness." Between these two extremes lie the steps qualified by the terms "indifference" and "lethalization." Grafted upon the latter through accidental or concomitant constitutional crases, may be an insane hopefulness more baseless than "the fabric of an empty dream," which deludes the victim to his doom and flatters him to the grave.

### FEAR IN ITS RELATION TO DISEASE.

It is observed that while the fear diathesis is universal, and will show itself somewhere if circumstances are consistent with and favorable to its display, yet diseases have modifying influences which are more or less constant. This fact was observed as early as the seventeenth century by the noted physician, Phillip Pinel, of whom it is related that he always questioned his patients as to the fear symptomatology.

It may be regarded negative evidence as to the presence of bacilli when the fear manifestations are constant in suspected lung disease, or these emotions may be due to some complications to which the fear symptoms may lay claim. Enduring pulmonary palsies occasioned by interference with the nerve supply essentially concerned in the functional activity of the lungs, are almost certain harbingers of pulmonary degeneration.

Some interesting facts are disclosed by comparisons of fear manifestations, as shown in diseases of unlike character to pulmonary tuberculosis. In disorders of a fear-inspiring nature, there is a seeming antagonism toward and a want of affinity with pulmonary consumption, which appeals to the observer at once. For instance, that awe-awakening and most heavily fear-laden of all known maladies, cancer, is almost never found in association with tuberculosis. Goitre is another disease which is accompanied by excessive fear expressions, and this disorder is as rarely found in combination with consumption as cancer. Nevertheless, goitrous regions abound with tuberculosis, and indeed, there is no zone exempt from it.

Fear-awakening heart disorders and cardiac hypertrophy with increased activity of the respiratory muscles are unfavorable to pulmonary tuberculosis. Emphysema necessitates conscious respiration and does not associate itself with conditions favorable to tubercular deposit. The pregnant woman, becoming so during the process or at the incipiency of pulmonary tuberculosis, usually lives a charmed life during gestation, being protected from its ravages until the end of her term, after which the disease takes up its course and continues to a fatal termination. The presence of the child exalts the costal respiratory efforts, and the fears and fright incident to the child's activity and the mother's anxiety for its safety are assumed to have to do with this antagonism.

It is the experience of those who treat chest diseases that tears, or emotional evidences and anxieties do not disturb the real victim of consumption, when applying for an opinion as to his pulmonary condition, whereas the suspected but innocent one displays tremors and fears, which are of diagnostic value. On the other hand, we may note briefly that those maladies which temporarily hold the lungs quiescent, or place them in a kind of paresthetic thrall, are prone to be followed by consumption. This latter disease, however, is not to be found immediately associated with the active stages of fevers, but appears as one of the sequelæ.

Tuberculosis of the lungs is almost unknown as a concomitant of typhoid fever, but it is a very common secondary affection which appears speedily after the fever has subsided. Diabetes is a quiescent, insidious and unalarming malady, and in this respect resembles tuberculosis; these two diseases are so commonly associated that 50 per cent. of the victims of either malady will show signs of each. Urinalysis is essential in every case of tuberculosis and microscopic investigations of the sputum in cases of glycosuria are also needful. Numerous other illustrations are at hand, but these will suffice to prove that—

> "By some of life's sorest ills
> Our fears are first anesthetized."

While this fearlessness grows upon us the successive changes touch us everywhere. Even our sentiments are employed to obscure the plain teachings of cause and effect.

### THE MORAL PLANE AND SENTIMENTAL ASPECT

of the individual case are made to appear everything which they truly are not. Though in every other direction there may be a moral tone which will prevent man from unwillingly or knowingly making that which is worst in him a distinguishing trait, this principle is not applied in the direction of the lung demeanor. It may be made obvious to each that the fearless lungs are carnal untruths among organs which are universally truthful, and that other organs than those of respiration, if ill, usually take cognizance of the most trifling annoyances and refer them to the centers. Yet there is a self-sufficiency in the pulmonary languor which yields complacency under all circumstances.

The pulmonary candor of our race becomes problematic, when, after pointing out the delinquencies and receiving a confession of shortcomings, they continue. This disposition to pulmonary prevarication dominates not only the mind, but also the action of the individual and gives grotesqueness to the pulmonary proprieties, and each becomes an ally of disease, while professing sincere admiration for those who are in a pulmonary sense recherché. There is an universal as well as individual inconsistency.

The lines of pulmonary proprieties rudely separate respiratory sincerity from pulmonary amenities. The instinct of the breathing apparatus is stifled by the tenets of polite pulmonary demeanor. As early as possible the respiratory will is broken and subjugated to the polite habits of the age, and these are usually impressed before many removes from the threshold of life. In the nursery, the child disposed to give evidence of his pulmonary or vocal presence is in danger of social ostracism, or at least is regarded as an unworthy associate of the quiescent prim dignitary with bacilli in his pulmonary apices. The pulmonary pigmy becomes an object of envy in the kindergarten because he is divested of the innate pulmonary and vocal impediments which prove hindrances to the social exaltation of his physical superiors. The feeling of resentment possesses each pulmonary nobleman who has grown out of short frocks into trousers, as he recalls his limitations which only permitted him to be "seen and not heard." Among the elite it is handed down through later years as an axiom that vocal continence and respiratory abstinence are deserving of emulation. Conventional asphyxia adopted early and continued long enough guarantee physical, mental and moral obliviousness to respiratory insincer-

ity throughout later life. Thus, some are unburdened of pulmonary fear and divested of the most rudimentary or primal evidence of lung sentiency. Polite lungs are made to fall short of perfect communication with the ideational centers, and the number of those in whom the reflex arc is not repeated in the respiratory organs is thus augmented. Pulmonary fixidity is substituted for spontaneous diversity for which the lungs are obviously provided. The most vigorous child may thus be forever denied the pulmonary conquest of that which, untrammeled, he might have the innate strength to grasp and to hold. We may appreciate in this view one of the causes which contribute to make the centers of civilization foci of pulmonary indifference, and may better comprehend why countries where refinement is at its zenith yield up their pulmonary integrity. Moreover, it may aid in explaining why young men of pulmonary vigor from the country are usurping the places of the city-bred youths, and passing them in the race towards success and distinction. Those who promote these fallacies do much to counteract the accumulated advantages of hygiene and sanitation. Nature's rule will obtain despite conventionalities, and it provides that, "the relics of psychic states and acts, with their lapsed reflexes and somatic impressions can only be obliterated when the organs in which they are impressed have become vestigial, or races in which they existed have perished."

From the earliest stages of respiratory prodigality to the last it is the habit to encourage, coddle, coax the individual, and to sympathize with him and condone the wrong done the pulmonary apparatus, until lung inefficiency becomes more than simply endurable, but respectable, and we aid one another to gravitate toward the pulmonary zero mark.

Sentimental suppositions that prompted the lungs to conscious effort in primal times have disappeared gradually, but surely, from our traditional history, and in their stead we have the unified sentiment which gives moral support and sympathy to the pulmonary delinquent; the limit of sympathy is proportioned to the amount of the delinquency. The greater the deficiency the more profound and more universal the sympathy. While nature treats him as a culprit, we ignorantly or impiously regard him as a martyr. Tranquil pulmonary self-assurance prevails, and the fact that nature is pitiless and helps only those who help themselves is forgotten. This sentimentality is very evident in the home of the invalid, and it has long been demonstrated that home influences are too tender and unpractical for successfully combating consumption. It is a fact which needs immediate recognition and a vigorous utilization that insensate lungs should have imparted to them the touch of anarchism.

When the undoing is complete, disease is exalted to a virtue and fearlessness, or the less excusable display of hopefulness, is postulated as the worthy and noble outgrowth of the refining and sanctifying influence of prolonged physical frailty. The individual pulmonary insolvency is accredited to the victim as a species of righteousness. It is a lamentable fact, however, that the lungs die apathetically, just as their possessors elected to live. Exhausted from disuse, it is consistent that they make little ado over death. It would seem pathetic if it were not inexcusable that those of the immediate household often fail to appreciate the tragic significance of this cold-blooded expression of familiar disposition, acquisition and personal fear obsolescence.

In every possible way such misapplication of encouragement and misunderstanding of the conditions, defeat the possibilities to which science unaided can not attain. When fear is present, it is the physician's supreme opportunity to secure the delinquent's attention and enforce the measures for pulmonary regeneration. When the physician sounds the note of alarm and attempts to reawaken fear or direct its influence into the proper channels, he is regarded as lacking in the characteristics which are demanded by the present-day sentimentality. The shock, dread and fright of an intelligent appreciation of the presence of consumption is assumed to be harmful, or at least cruel, and the physician, if respectful of these feelings, is compelled to yield to the overweening influence of friends and the subject continues his slumbrous optimism. However, there is nothing to be apprehended from well-directed fears in lung disease. Moreover, the subjects who are excessively alarmed under such circumstances, are displaying even in that alarm, less morbidity than those who display fearlessness.

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## THE EXPERIENCE OF SYRACUSE, N. Y., WITH THE COMPULSORY TUBERCULIN TEST OF ALL DAIRIES FURNISHING MILK TO THE CITY.*

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The object of this paper is not a desire to advance something new in regard to tuberculosis or tuberculin, but rather to call your attention to the great merit of tuberculin as used to-day in veterinary practice, and recite the experience of Syracuse in its use for the past four years. This experience has impressed me with its great value as a means of diagnosing bovine tuberculosis, and the hope that prompted the presentation of this paper is that such testing may soon become general and that the tubercle bacilli may be driven from the milk supply of our entire country.

I am not of those who believe that the tubercle bacillus of infected milk is the principal cause of tuberculosis in man; though not the principal, I do believe it to be a very important cause, next perhaps to the most important—that of direct infection from the infected to the susceptible uninfected. Susceptibility is as necessary and as likely in those who contract tuberculosis from the cow through an infected milk supply as in those who obtain the malady directly from a diseased man or woman. Where can susceptibility find better conditions for its full satisfaction than in the delicate baby having all the inherited weakness of its parents, feeding upon tuberculous milk and added to this a digestion too poor to destroy germ life, with the mucous membrane lining the entire alimentary canal, the seat of catarrhal inflammation, the prepared ground, as it were, ready for the seed, the tubercle germs?

The history of tuberculosis in cattle, though meager, is exceedingly interesting. At the Fourth International Veterinary Congress, held at Brussels in September, 1883, the subject of bovine tuberculosis was discussed. It was most thoroughly handled by the reporter of the Commission, Professor Lydtin of Carlsruhe, Germany. Many of the following facts and statements are taken from this report.[1]

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee.

1. See First Annual Report of the Bureau of Animal Industry for the year 1884, pages 350 to 366, "International Veterinary Congress, reports of Dr. James Law."

According to the law of Moses the meat of an animal that was pining away could not be used as food. More distinctly is the condemnation given in the Mishna (the collection of traditions and laws by the ancient rabbis), according to which the body of a slaughtered animal was condemned as food if the lungs could not be distended with air or had growths attached. Lydtin states that this ordinance was observed by the early Christians until the third century and that diseased meat found by the overseers of markets in the city of Rome was thrown into the Tiber. The eating of diseased meat was prohibited by a law of the church in the tenth century. The sale of diseased meat was prohibited by the ancient laws of Italy, France, Spain and Germany. In 1716 a French butcher was condemned to nine years' exile, a fine of £5000 and debarred from following the same occupation, for supplying diseased meat to the army.

To France belongs the honor of having first introduced, in 1810, municipal abattoirs which are now found in most large European cities, thus rendering a thorough inspection of all slaughtered animals possible.

In the eighteenth century a strong conviction existed among the people as to the contagious character of both human and bovine tuberculosis, which is evident from the fact that consumptive persons were separated from others and after their death their clothes, etc., burned.

On Sept. 20, 1782, the King of Naples issued an edict requiring the isolation of consumptives and the disinfection of their rooms, books, etc. The punishment for violating this ordinance by an ordinary person was three years at the galleys, but a noble received three years' imprisonment and had to pay 300 ducats. If a physician neglected to report a case he was fined 300 ducats for his first offense and banished for ten years for a second.

From among professional men many can be quoted who were convinced of the contagion of bovine tuberculosis long before Robert Koch discovered the tubercle bacillus. Thus, Ruhling of Göttingen, Germany, wrote in 1774: "The malady is transmitted to sound animals by direct contact of infected animals standing side by side in the stall and licking each other, and breathing the expired air direct from the diseased lungs; the frequenting of the same pastures will also serve to propagate it." Cruzel in 1868 used these words: "This fetid expired air, inhaled immediately by another cow upon a sound lung, gives the latter tuberculous infection. It is a matter of everyday experience to the veterinarian. Two oxen or cows are kept in the same stable, take their food from a common rack or manger, lie in the same stall and respire nose to nose. The one is perfectly sound, the other is to all appearances in as good a condition, is vigorous, but it coughs from time to time, and its breath is foul. Soon it is noticed that the animal that does not cough eats with less appetite, loses flesh and soon is unequivocally affected with the same malady as the other."

With the epoch-making discovery of Robert Koch a new impetus was given to the suppression of tuberculosis in cattle. Thousands upon thousands of tuberculin tests have been made in almost all civilized countries and hundreds of postmortems have proved the almost unfailing correctness of the test.

The Empire State was the first in the Union to pass a law which conferred the power on the State Board of Health to cause an examination of milch-cows for tuberculosis or other contagious or infectious diseases. This was during the session of 1892, Chapter 487. This was followed with Section 63, Article V, Chapter 661, of the laws of 1893, which was amended by Chapter 617 of the laws of 1894, which reads: "It is the duty of the State Board of Health to investigate concerning the existence and cause of tuberculosis in cattle and use all reasonable means for averting and suppressing such disease."

In the report of the commissioners on tuberculosis in cattle in the state of New York, which was transmitted to the legislature on Jan. 24, 1895, we find on page 8 a "summary of all cattle examined, condemned and slaughtered by the Tuberculosis Commission, with the distinctive breeds," according to which up to the year 1895, 2417 cattle had been submitted to the tuberculin test, of which number 405, 16.75 per cent., or one-sixth, were found to be diseased and were condemned and slaughtered. During the year 1895, there were tested in Onondaga county four herds of cattle. Again, in 1898 the Committee had tested 17 herds of cattle for the Syracuse Milk Supply, and the Committee says: "Where no disease was apparent by physical inspection 4 per cent. were found diseased."

The 15th Annual Report, for 1898, contains the report of Health Officer Dr. O. A. Thomas, in which he calls special attention to the resolution introduced by him to the Board, and passed at the December meeting, compelling all persons peddling, selling or delivering milk in Syracuse to have on or before April 1, 1899, a certificate from a competent veterinary surgeon, that their cows are free from diseases.

The 16th Annual Report, for 1899, contains the results of the first general compulsory testing of the cows supplying the city of Syracuse with milk, and it is as follows: No. cattle submitted to the tuberculin test, 3843; No. cattle responding to the test, 200, or about 5.25 per cent. This testing, with the condemnation of 200 cows from the herds supplying milk to the city met with some opposition and an outspoken determination that it must not be repeated.

At the beginning of the year 1900 all dairymen were notified that their herds must be tested and must be retested every second year; that new cows added to the herds would be tested the intervening year. The dairymen held meetings, expressing themselves freely pro and con in regard to the test. All licenses had expired on April 1, and on April 25 the milk producers in convention had decided not to allow their herds to be tested by tuberculin. They, at this time, appointed a committee to obtain the best legal advice upon the subject, and found that they must conform to the requirements of the Health Bureau or keep their milk out of the city; which they determined to do until such time as they could bring the Health Bureau to change its position. The Health Bureau then gave notice that any person selling milk without the proper license on or after May 1 would be arrested. From this time until May 1, every peddler presented to his several patrons a petiiton requesting them to sign against the test. This measure was a failure, few signatures were obtained and the petition never appeared.

May 1 dawned bright and warm, but the familiar rattle of the milk wagon was not heard on the streets. These conditions lasted three days, during this time public sentiment and expression of our local press remained entirely with the Health Bureau. No complaint ever reached us, though doubtless many suffered at the stopping of so necessary an article of food. At noon on

the third day the dairymen desired a compromise, but we had none to make. A clergyman waited upon us and thought that as the tubercle bacillus might exist in butter and cheese, it was foolish to endeavor to exclude it from the one article—milk. I said: "Though you are not able to stop all the vice in the city, you do endeavor to stop some by preaching to your congregation every Sunday." An hour after, the Onondaga Milk Association, the largest milk producers in the city, requested and obtained an extension of ten days' time in which to have their cows tested. Their example was quickly followed by all other dairymen and our milk war was over. Very material support was given the Health Bureau by our Commissioner of Public Safety, Mr. Duncan W. Peck, and by the Syracuse Academy of Medicine, especial gratitude being due Drs. H. D. Didama, John L. Heffron and Frederick W. Smith, formerly of the State Board of Health.

This year's testing has been carried on with the kindest feeling existing between dairymen and the Health Bureau. Many dairymen who have investigated the subject have the greatest faith to-day in the test and will oppose it no more.

It is but fair to say that the majority of farmers were honest in their opposition and have since shown a desire to investigate the worth of tuberculin. I will repeat the history of one such case: Mr. A., an intelligent gentleman, the owner of a fine milk farm, had a cow that reacted to the test with a typical temperature that remained at 104 or above. She was condemned, the attending veterinary telling Mr. A. that he would give him a $20 gold-piece if she proved non-tubercular The dairyman regarded the cow as one of his best animals; she was giving an extra large amount of milk, was sleek, fat, and appeared a cow in perfect health; but he desired to know the truth and only agreed to sell her when the butcher promised that Mr. A. should be present at the killing. I was notified at 2 p.m. that this event was to take place at 3 p. m., and after telephoning to several physicians, drove rapidly to the place of slaughter, where I found the cow nearly dressed and the butcher working hard in his endeavor to have the job all over and all evidence of tuberculosis removed before the time appointed for the killing and the coming of the veterinary. Mr. A. and his son, both at that time unknown to me, were careful spectators of the proceedings; the butcher repeatedly assuring them as he worked that "there wasn't a pimple on her." The lungs were still to be removed, and their removal I carefully watched. The butcher hung them up as quickly as possible after removal, so a decided enlargement by the apex of one lung was turned in and covered. I asked that they remain there for a short time, until the veterinary should arrive, and as I saw a carriage approaching I stepped toward the front of the building. The butcher was watching and when he saw me speaking to a physician who was just entering, he made a quick sweep of his knife and the enlargement dropped from the lung. He was not quick enough. I returned and picked up the piece, which was an enlarged bronchial gland, weighing one and one-half pounds, a beautiful specimen of solid tubercle in the cheesy degenerative state, the center of the mass soft and ready to break down. The specimen was preserved in the Syracuse Medical College, after the city's bacteriologist had found bacilli in large numbers. Mr. A. from that time has remained a friend of the test. He was much surprised by the findings, remarking that this cow had never shown any visible signs of disease.

No. cattle then submitted to the tuberculin test, 4127; No. cattle responding to the test, 52, or about 1.26 per cent.

No. cattle submitted to the tuberculin test this year, 731; No. cattle responding to the test, 2, or about 0.27 per cent.

You will notice the gratifying decrease in the percentage of reacting cows: Five and one-quarter in 1899; one and one-quarter in 1900, and one-quarter in 1901.

The following facts give us some idea in regard to the prevalence of bovine tuberculosis: During the year 1889 there were killed in eleven abattoirs of the Kingdom of Saxony, in Germany, 56,723 cattle; of these 8 per cent. were affected with tuberculosis, namely, 12 per cent. of cows and 5 per cent. of heifers. Dr. Reick gave a careful report of the Leipsic abattoirs for the three consecutive years beginning with 1888. During this time 68,000 beeves were slaughtered, and of this number, 14,000, or about 20 per cent., were tuberculous. We should expect these animals to be in health conditions above the ordinary dairy cow. The London *Lancet* of April 15, 1899, gives an account of the testing of the late Queen's herd of 40 cows on her farm at Windsor; 34 head were condemned. The Queen ordered the whole herd slaughtered, requiring postmortems in every case by the Royal College of Veterinary Surgeons. These examinations proved the reliability of the test. Many such instances can be cited, such as the case of the fine herds of the late Governor Morton of New York; but perhaps the one that was most convincing to Syracuse and vicinity, was that of the herd of De Wayne Brown of North Pharsalia, N. Y. These animals had been submitted to the tuberculin test on June 14, 1899, and condemned by the State Board of Health. With the desire to convince the doubting milk-producers of Syracuse of tuberculin's value, they were brought to Syracuse and slaughtered. The results of the autopsies made under the direction of Prof. James Law, of Cornell University, proved that every cow of the herd of 21 was more or less diseased.

Milk, an indispensable article of food, universally used, must be separated from any suspicion of infection from a bacillus the cause of the most common and at the same time the most fatal of diseases. That such infection exists to-day is admitted on all sides by scientific men who have investigated the subject. There is a difference of opinion as to the extent of the danger, slight perhaps in the milk of animals having small encysted tubercular deposits, greater as the disease becomes general or when the udder is affected; so to-day the consensus of opinion from medical men is that a cow no matter how slightly tuberculous, should not produce milk for human consumption. The danger of infection admitted, is it possible to crush out bovine tuberculosis from the herds of our country? With no hesitation, I answer, yes. What any careful farmer can do for his herd, and what very many such farmers have done for their herds the state can do for all herds within its confines and the same care can be exercised by the state in admitting cattle within its limits as is exercised by the careful farmer in admitting new cows to his herd.

This, the first year of a new century, should be marked by a determination in medical men and medical societies

to block every avenue of attack of the tubercle bacillus, to-day the recognized cause of "the great white plague." We are not compelled to work in the dark as were the physicians of past ages. We know exactly the cause; we know exactly the favoring conditions for the multiplying of that cause; the chief means for the growth and spread of the tubercle bacillus can be counted on the fingers of one hand; and it is to us that the laity look to check this dread malady, and for the knowledge that they may intelligently protect themselves against infection and even in the majority of cases save their lives after infection. If this year and this new 20th century could be recognized and adopted by physicians the world over for united effort against one and all means of travel and development of the tubercular germ, what a grand result this effort would show at the century's close, and at the birth of the next, the 21st century! Tuberculosis compared with now would be a rare disease, and medical men would well be repaid for 100 years of hard united work.

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## CLIMATOGRAPHY OF ARIZONA, WITH ESPECIAL REFERENCE TO THE CLIMATIC TREATMENT OF PULMONARY TUBERCULOSIS.*

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Of all diseases which have wrought devastation to the human race, there has never been a disease more deadly or more widely distributed than tuberculosis. Other communicable diseases have caused more dismay, and occasionally, for a short period, even greater destruction; but tuberculosis has been, and to a lesser degree continues to be, the most constant and virulent of all. It has been recently estimated that there are one million cases of active tuberculosis in the United States, and the latest authentic statistics show that 14 per cent. of the deaths recorded for ten years are due to some form of it.

Climate, as affected by mere latitude, does not seem to have any influence on the disease. The death-rate from this cause is practically the same in New York, at a latitude of 44 degrees, and Manila, which is only 15 degrees from the equator. On the other hand, a low relative humidity seems to be a very potent factor, and in the Alps, the Rocky mountains and the great interior plateau of South Africa the disease is very rare.

In all localities where there is a relative immunity from the disease, the climatic conditions are such as to allow or compel their inhabitants to live largely an outdoor life. Knopf says: "Were I to be asked to express an opinion on the subject, I would say the best climate for the tubercular patient is the one which permits him to remain outdoors more and longer at a time than anywhere else." In other words, that place having the most sunshine, least moisture, and most even temperature is the ideal spot. Believing that Arizona very nearly fulfils these conditions, and is probably less known to the profession than most other sections of the country, its climatic conditions have been made the basis of this article. Variations in climate are wholly due to variations in the physical conditions extant. These are generally local in character and few in number. The atmosphere at a short distance above the earth's surface is practically the same everywhere, but at the surface it varies somewhat. The most important of these variations are, 1, temperature; 2, air-weight as determined by altitude; 3, humidity; 4, sunshine. As these physical conditions vary with the parts of the earth's surface, it may be said there are no two climates exactly alike, and it is practically impossible that there should be. The most potent factors in determining these variations of climate are latitude, altitude, and large bodies of water.

1. Studying the climatic conditions of Arizona on this basis, we find that they are certainly unlike anything else in the world. The Territory is located between the two greatest ranges of the Rocky mountains, between 30 and 35 degrees North latitude. It is largely comprised in an extensive plateau that has climatic features so distinctive as to merit a separate place in the classification of climates. Hundreds of miles from any large body of water, traversed by lofty mountain chains, and surrounded for several hundred miles on every side by sandy deserts, it has the natural physical conditions which combine to make it the ideal climate for the consumptive. We rarely contemplate the far South latitude of the region when thinking of Arizona, but nevertheless it is almost exactly of the same latitude as Cairo, in Egypt, and the greater portion of the Territory has a very similar climate.

The general slope of the country is toward the south and west, ranging from an average altitude of 7000 feet at the Grand Canyon and around Flagstaff, in the northern part, to sea level in the south and west, in the locality of Yuma, which is erroneously but popularly supposed to be the hottest town in the United States. The northern and eastern portions of the Territory are to a very large extent mountainous, and covered with pine and cedar forests, which, being almost entirely clear of underbrush, form magnificent natural parks. This region is the watershed from which source is derived the water used for irrigation of the famous Salt River valley, which bears to Arizona the same relation as does the valley of the Nile to Egypt, and which archeological authorities claim has been under cultivation for an even longer period than that valley.

The two principal towns in the northern part are Flagstaff and Prescott. Flagstaff is a beautiful little city of 2000 inhabitants, and was certainly intended by nature for a summer resort. It has an altitude of about 7000 feet, and is located about the center of the National Forest Reserve, which includes the San Francisco mountains and the Grand Canyon of the Colorado. During the warmest summer months the temperature here rarely exceeds 80 degrees, and at all times blankets are necessary to comfortable sleeping. This region is particularly rich in the natural objects of interest which are so necessary to occupy the time and attention of the semi-invalid. The Grand Canyon of the Colorado, certainly the greatest scenic wonder of the world, is now reached by railroad, connecting with the main line of the Santa Fé at Williams, as well as by an automobile line which makes the trip from Flagstaff to the rim of the Canyon in eight hours. In and around this region within driving distance of Flagstaff are Montezuma's castle, probably the most famous of the Aztec ruins, Montezuma's well, the crater of an extinct volcano, a petrified forest, Cataract Canyon, with its village of Supai Indians, and beautiful waterfalls, and Walnut Creek Canyon, with its cave and cliff dwellings. The mountains and canyons in this locality are the

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee.

sportsman's paradise. In the southern portion of the Territory is the Salt River valley, which is probably the objective point of more people seeking to escape the rigors of the northern winters than any point in the Southwest. This valley is about 60 miles long by 30 miles wide, and is as level as a floor, with a gradual slope to the southwest. It was at one time the seat of Aztec civilization, and it has been estimated from the immense ruins found in various parts of it that this region formerly had a population of about 300,000. Even now, ancient canals may be distinctly traced, demonstrating that a most elaborate and extensive system of irrigation was carried on. Near Phoenix, Casa Grande and Temple, are the ruins of prehistoric cities that were beyond question more populous than any now in existence between Denver and the Pacific coast. This valley is now largely under a high state of cultivation and is a veritable oasis in the desert. It is mostly given up to citrus fruit growing, and the orange groves within five or six miles of Phoenix are one of its most attractive features. A belt stretching for miles along the foothills produces the finest oranges grown in America, and a ride along some of the driveways skirting the canals which supply the water for irrigating these fruit orchards is one of the best tonics available. Killing frosts are practically unknown, and even during January and February, the coldest season here, the apricot and almond trees are in bloom and alfalfa fields are as green as an Illinois lawn in June.

Phoenix, the capital and commercial center of the Territory, is located in the Salt River valley and is a thoroughly modern town of about 15,000, with electric lights, street cars, the best of winter hotels and probably more churches and schoolhouses than are to be found in towns of equal population in the East.

As the manifold climatic advantages of this Territory, chief of which are an even temperature, medium altitude, minimum humidity and maximum amount of sunshine, are becoming more and more clearly recognized by the medical profession in the East and North, the tide of winter travel is tending in this direction, until Phoenix, in particular, of its many towns, is the objective point of a far greater number of pulmonary cases than any other city of equal population in the Southwest. The greatest number of invalids are of the tuberculous class.

They recover in encouraging numbers; in such proportions, indeed, that it is the strongest argument that suitable cases should invariably be sent from the colder regions of the North and East to a climate where the conditions are such as to make an outdoor life the natural existence. By passing the summer in Flagstaff, the fall in Prescott, the winter and spring in Phoenix, the invalid may enjoy the advantages of the Riviera and the resorts of Switzerland and Egypt with practically none of their disadvantages.

In a consideration of the individual factors controlling the climatic conditions here, temperature and a low relative humidity may well be considered the most important, as the even high annual temperature and dryness of the atmosphere are Arizona's chief claims to merit, as compared with many other good climates.

1. The temperature of Arizona is higher than in some regions of the Mississippi valley, by an average of fifteen to twenty degrees in summer, and by thirty to forty degrees in winter. Yet the relative humidity is so low in summer that the sensible temperature is five to ten degrees lower in Arizona; that is, the sensibility of the human body to heat is really less in Arizona than in Illinois. A temperature of 110 degrees in Arizona is much less unpleasant than a temperature of 90 degrees in Chicago. Thermic fever is unknown, even in the hottest summer months. I have known of a few persons somewhat overcome by the heat, but they never had elevation of temperature, or the symptoms common to sunstroke, and a careful inquiry generally elicited a history of alcoholism. The government reports show an average temperature for fourteen years at Phoenix for December of 65 degrees, for January of 58 degrees, and February of 63 degrees. The nights throughout the winter are apt to be cool enough for open wood fires, and for blankets. Generally overcoats are not needed during the day, even in the midst of winter.

2. The variations in altitude are very pronounced, and this is a striking advantage in some respects, as with the same general conditions as to temperature and dryness of air the physician is able to select nearly any altitude he may desire, ranging from sea level at Yuma to 6800 feet at Flagstaff. The improvement in nutrition, particularly the great increase of red blood corpuscles that sometimes occurs upon removal to a higher altitude is remarkable, but I believe the intense expansion of the lungs in these cases is detrimental rather than otherwise. That an enlargement of the thorax follows a residence at a high altitude there is no question, but the increased resonance of the percussion note is, I believe, generally due to an emphysema produced by the altitude rather than to increased lung power. The theory advanced by Murphy in support of the nitrogen gas treatment, that the diseased lung needs rest rather than unusual activity, is entirely logical, and I believe that, as a rule, the good results secured by sending patients to high altitudes are due primarily to other causes, notably dry air and improved hygienic surroundings, rather than to the effect of the high altitude.

3. A low percentage of humidity is, I believe, the most important essential in the elements that go to make up the ideal climate for the treatment of pulmonary tuberculosis. Other conditions being equal, tuberculous cases improve much more rapidly, and a greater percentage of recoveries is found where the relative humidity is lowest.

The lack of moisture in the atmosphere, as reported by the United States Weather Bureau, at Phoenix, is truly surprising. On several occasions during the month of June, 1900, the relative humidity fell as low as 1 per cent., as compared with 50 and 60 per cent. in Chicago, and eastern cities.

The average annual rainfall recorded at Phoenix is 6 inches, as compared with 35 inches as Asheville, N. C., 18 inches at Los Angeles, and 15 inches at Denver, Colo. The official weather reports demonstrate that Phoenix has the lowest percentage of humidity and the maximum amount of sunshine of any city in the arid belt, which effectually controverts the statement that has been made that the irrigation in the Salt River valley had interfered sadly with its climate for pulmonary cases.

One especially noticeable effect of the dry air is the great diminution in the amount of sputum in those cases where there is excessive bronchial catarrh accompanying the tubercular lesion.

4. The value of a maximum of sunshine can hardly be overestimated, as the relative humidity and the

temperature depend to such a large extent upon it. Its mission can not be fulfilled by the model comfortable house, and, as the love of sunshine is proverbial, its influence in inducing patients to live outdoors is perhaps greater than any one other climatic feature.

Knopf, in his excellent work, speaks of the great amount of sunshine enjoyed by invalids at Davosplatz, Switzerland, mentioning that the average daily sunshine for the month of November is 4 hours, 16 minutes, which is truly a relatively large percentage; but when compared with the 9 hours, 12 minutes reported by the United States Weather Bureau at Phoenix, for the same month is small indeed.

Phoenix has the greatest percentage of sunshine recorded by any United States Weather Bureau office, and during the year 1900 there were but five days on which the sun did not shine there. This is a matter of the utmost importance, as the entire trend of modern ideas upon the subject is toward the outdoor treatment, and my experience has been that it is extremely difficult to induce patients to remain in the open air when the weather is cloudy or bad.

The mental condition of the average tuberculous subject corresponds very closely to the barometer. When the day is cloudy and the humidity is great, he is depressed and melancholy. When the sun is bright, his spirits rise, and he wishes to be outdoors as long as possible, and does not suffer so severely from nostalgia, which has such disastrous results in many cases.

In discussing the various forms of tubercular lesions, particularly those involving the pulmonary tract, it must be borne in mind that in many cases there is a spontaneous healing which has been demonstrated by postmortem and pathologic investigations. The very fact that these spontaneous cures do occur, and the evidence is abundant, frequently in cases where a tuberculosis has never been even suspected, is sufficient evidence that conditions may arise or be induced within the patient suffering from tuberculosis which will check the course of, and in many cases entirely eliminate, the disease.

In all tubercles two processes go on—the one, caseation, destructive and dangerous; the other sclerosis, conservative and healing; the ultimate result depends, in the given case, upon the capabilities of the body to restrict and limit the growth of the bacilli. To produce and strengthen these capabilities must be the aim of all curative treatment, whether it be by specific medication or by the open-air treatment. (Osler.)

Regarding specific treatment, the various new cures so frequently presented to the profession, and through it to the public, are the best evidence of our lamentable weakness in that direction. As yet there have been no indisputable evidences of benefit derived from the treatment of pulmonary tuberculosis by the serums or tuberculin, and my personal observation leads me to believe that there have been many more tuberculous patients hurried to an early grave by the use of creosote, guaiacol, ichthyol, etc., than have ever been benefited by them. Many of our best writers condemn tuberculin in no uncertain terms, and I feel sure that not many of us, if suffering from tuberculosis, would use it individually, except, perhaps, for diagnostic purposes. Karl von Ruck clearly demonstrated the worthlessness of the serums.

To my mind, the most important of all is the open-air treatment. The principle which this plan of treatment recognizes as of vital importance, without which all else is naught, is comprised in the three essentials to perfect animal life, namely, pure air in unlimited quantities both day and night, good food and plenty of it, and, as near as possible, complete repose. The benefits to be derived from this mode of treatment are coming to be widely recognized, and statistics of such open-air institutions as Nordrach, in the Black Forest; Kimberly, in South Africa, and Falkenstein, near Frankfort, all testify to its efficacy. The method pursued by the more modern sanitariums, particularly those above mentioned, is to give the tuberculous patient, as nearly as possible, an absolutely outdoor existence. Undoubtedly the best results attained here have been by a tent life on the desert at the foothills, which extend within six miles of Phoenix. Indeed, many people sleep practically in the open air all winter, although it is not so commonly practiced as it should be when carried out under intelligent direction. In brief, we may summarize as follows: Pure and abundant air both day and night, indoors and out; such good and plentiful food as a simple, open-air life may enable a patient to digest; rest, frequent and complete; a long night of sleep; an hour's rest after walking, additional rest when the individual may require it; and in all cases absolute avoidance of fatigue.

### DISCUSSION IN SYMPOSIUM ON TUBERCULOSIS.[1]

A MEMBER—I ask Dr. Salmon how much danger he apprehends from the beef of animals that were tuberculous?

DR. D. E. SALMON, Washington, D. C.—I purposely avoided that question in my paper because it is so much contested at this time. I spoke somewhat of the danger of tubercular material existing in the muscular tissues of animals, a condition which is illustrated by some of the specimens which I have put in the pathologic exhibit. It is generally admitted, I believe, that there is not very much danger from meat. Whether that is a correct conclusion or not, I am not prepared to say. The English investigations made by the Royal Commission showed that when tubercular matter was included inside of the roasts of beef, with ordinary cooking, it was not destroyed. They also showed that the butchers in dressing the carcass would cut through tuberculous glands and other structures, and carry the infectious tubercles on their knives to the muscular tissues; and they appeared to think that there was considerable danger. On the other hand, the postmortems on adults showed that the lesions of tuberculosis starting in the abdominal region do not appear to justify the conclusion that there is a very large number of cases occurring from meat; that is to say, there appears to be a very comparatively small proportion of tuberculosis in adults that start in the abdominal region.

There is a good deal to learn about that yet, and for that reason I rather laid stress on the danger from milk, which none of the authorities who have looked into the matter carefully have contested. It is generally admitted that there is a good deal of danger from milk. Certainly there is more than there is in meat. We want to establish the point first that there is danger from milk, and for that reason we are putting our work upon that. After that is done, perhaps attention will be turned more particularly to meat; but for the time being it is admitted by all that the danger is principally from milk.

A MEMBER—In Germany, do they not allow all meat of tuberculous animals to be sold?

DR. SALMON—The carcasses which show generalized tuberculosis—that is to say, which show that the bacilli have been distributed to the carcass by the blood—are condemned. But there is a chance for a difference of opinion as to what is a generalized case and what is not. We would call sometimes a case one of generalized tuberculosis that others would not, and so that makes some difference. That class of cases amount

1. For the papers of Drs. Salmon and Robison, see THE JOURNAL of December 28, and for the papers of Drs. Bracken and Ambler, THE JOURNAL of January 18.

from 2 to 3 per cent. that are condemned and destroyed. Then they have another class of cases, where there is extensive tuberculosis; that they sterilize, and then they allow it to be put on the market. This is sold as inferior meat. That constitutes probably 5 or 6 per cent. of the tuberculous carcasses, making, with the generalized carcasses and the sterilized carcasses, from 7 to 8 per cent. that are either destroyed or sterilized. The balance of the cases of tuberculosis are put on the market without restriction.

DR. M. H. REYNOLDS, St. Anthony Park, Minn.—The prevalence of bovine tuberculosis in our country without regard to breed is admitted, and all breeds are affected. A large percentage of all these cases are mild and latent. The cattle are sleek and fat and look the pictures of health, and it is difficult to convince people that they have tuberculosis, or anything except perfect health. Another difficulty that veterinary sanitarians meet is the indifference of the general public, of stock owners, and particularly of breeders of pure-bred cattle. There lies the most difficult problem of all: tuberculosis in pure-bred herds. For breeders to stand any chance in the show ring, their cattle must be excessively fat. That means that the animal has been idle for a long period of time and has been kept under artificial conditions. It is true that many herds of pure-bred cattle are kept under very artificial conditions, and it is also true that there is a great deal of tuberculosis among such cattle. Then again comes in the complication that they are so very valuable. We can kill and pay for cattle worth $40 apiece, but we can not condemn or kill or quarantine for any long period of time cattle worth from $300 to $1200. We can never get our legislature to appropriate enough money to pay for very many pure-bred cattle.

Dr. Salmon mentioned the point that there was a present tendency among medical men to belittle the danger to human life in the use of tubercular meat and milk. That danger may have been overestimated, but we are now at the danger point of going to the other extreme and belittling a serious problem. We should not do that. Sweeping, general measures are hopelessly impracticable. Measures that would attempt to test all cattle in this state and destroy all carcasses of reacting cattle, or even permit the sale of a portion of the carcasses, are impracticable. It being granted that we can not go through the state and test all the cattle within her borders, the question arises: What then can we do? First of all, we can get the people of the state, particularly the heads of families interested in knowing what sort of herds the milk comes from that their children are using, and here is a good work that medical men can help along a great deal. I am afraid that there are a great many medical men in our cities that never think of suggesting to their families the desirability of knowing what sort of dairies the milk comes from. Physicians in private practice can do a grand work by getting their people interested in this subject. So far as I know, Minneapolis was the first city that really undertook serious work along this line. In 1896 work began in Minneapolis on the plan of not ordering that all cattle should be tested, but merely saying by ordinance that unless herds were tested owners could not sell milk within the city limits. Dr. Moore told us of their experience in Syracuse. We went through a similar experience in Minneapolis. The measure was fought bitterly by the dairymen's association, and the first year it was slow, up-hill work. The second year was a little better, but gradually the measure gained support among the dairymen themselves, and within the last year expressions have been very free among dairymen of the Twin Cities, and particularly Minneapolis, that they believed it was a good thing. That they believed there was such a thing as tuberculosis among their cattle, and it was a good thing to have their herds tested; that the people should have milk free from non-tuberculous cows, etc.; but at the same time they would say they didn't think it was just that dairymen should stand all the loss of the condemned carcass. Last winter the legislature made provision for paying a part of this loss, so that now the cattle owner gets two-thirds of an appraised live-stock value.

I do not see any way at present where we can accomplish much except by affecting the owner along the line of his pocketbook. If we can show him that it means dollars and cents to him now, or at some time in the future, we can accomplish a great deal. Owners are very loath to have their herds tested with the possibility staring them in the face that large portions of their herds may be tuberculous, and I am afraid that many of us would look at the thing as they do if we were in their place. If we can get a few breeders to advertise that their herds are free from tuberculosis, and that every animal has been subjected to the test, or if any arrangements can be made to advertise their herds and make their stock more valuable, I think we can accomplish a great deal along that line.

The difficulty has always been, and always will be, with cattle of that class, the artificial conditions under which many of them are kept. It is one of nature's laws that an organ or a tissue that is not used, or used less than nature intended that it should be, must necessarily lose in nutrition and vitality and become subject to disease, and so, when cattle have been kept fatted and standing for months, although they may be fat and nice looking, they may also at the same time be tuberculous, and will be very apt to be so. One thing that we can accomplish along that line is to induce the breeders to give their cattle better hygienic conditions, more sunshine, more air, and fewer dark stables.

DR. NORMAN BRIDGE, Los Angeles.—It seems that, admitting all the difficulties of accomplishing good we all hope and wish for, there are a few directions in which our efforts should be exerted because they are practical. We should encourage dairymen to have their cows free from tuberculosis by limiting their sale of milk; that always brings them to the point. It can be done in any city as well as it has been done in Syracuse. It only requires courage. The people are willing to pay enough more for the milk to reimburse the dairymen for losses. From an economical standpoint that point must be conceded. If the dairyman is obliged to lose some of his cows he must be reimbursed in some way, and it means paying more for milk by the citizens who consume it. That I believe the citizens would always be willing to bear, and all that is necessary is for the boards of health and the governing bodies of cities to insist on these measures. They not only do a great deal of good in the ways that have been mentioned, but they are educative to the public. I should have been glad if Dr. Moore had told us somewhat more of the inspection of the dairies of Syracuse; whether the inspection extends to other conditions than tuberculosis. It seems to me that we ought to encourage the health departments of cities not only to inspect herds for tuberculosis, but as to their general cleanliness, and the hygienic conditions of the stables, and the utensils used, as well as that the milk shall be free from contamination and shall not be adulterated or lower in standard. I sanction everything that has been said in favor of the inspection of dairies as to tuberculosis. That is one practical thing that we can do to prevent the spread of this disease. Another practical thing is the erection of sanatoria. The people are becoming educated to the seriousness of tuberculosis and its communicability, and in no new or novel direction can they be helped so much as in the direction of an increase of sanatoria. The great majority of the people can not go to sanatoria that require them to pay for their board. There ought to be free sanatoria for indigent patients, at the public expense, and we ought to agitate for such to be erected and conducted by the state. All reforms are brought about in this way. We must insist on great things, and then we will accomplish some small things. All people with tuberculosis ought to be in sanatoria, unless they can take perfect care of themselves at home.

DR. H. M. BRACKEN, Minneapolis—I notice on the program the word "sanitaria." I would be sorry to see this word come into general use. Many quack institutions about the country have been known as sanitariums. The places where we send tuberculous patients are not sanitaria; they are sanatoria, and I do hope that this Association will be particular in its choice of these words. There are two or three good institutions in the United States where tuberculous patients are treated, that are known under the name of sanitarium, but it is not the general term, and not the correct term, and I think it will be well for us to be careful to observe the correct term.

I am strongly in favor of the tuberculin test, and I think it is well to have the dairymen working with us in its use. They are taking an interest in the matter in St. Paul and Minneapolis, and I hope it will become a matter of general interest in this state. But we are not going to secure a non-tuberculous milk supply simply by testing cows for tuberculosis. Take, for instance, St. Paul and Minneapolis. The testing is done by the sanitary authorities of the city. A herd is tested to-day, we will say, and a number of cows are condemned. And go to the slaughter house in a few days. The owner has his regular customers and he must keep up his milk supply, he therefore buys other cows to replace those that have been killed. He has no evidence whatever that the cows he has just bought are any better, or as good even as those which have just been killed. But the cows that he has bought to take the place of those just killed will not be tested for tuberculosis for possibly ten months, possibly two years. It is impossible for the authorities of the city to get around to these various herds at very frequent intervals.

The dairy barn should be looked after closely, and should always be disinfected after infected animals have been taken from it. I heard a dairyman, recently, speaking of a neighbor who had a number of cows that had been condemned and killed, say: "That man will be just as bad off in a short time as he is now. His barns are not fit to keep animals in. There is only one way for him to save his place, and that is to set fire to his sheds. They can not be disinfected in any other way without great expense."

DR. A. S. MOORE, in reply—When a veterinarian at Syracuse makes an affidavit that he has tested the cows for tuberculosis we also require an affidavit from him that those stables are all in a sanitary condition. We have inspectors who visit these stables frequently, and anything that they regard as unsanitary is reported to the Health Bureau. We believe that we have a good man in the person of Dr. Engelhardt, of our city, who has been connected with the department for many years, and who is a first-class chemist and understands all the phases of bacteriology and the means of destroying disease-producing germs and their spores. He gives instructions as to what must be done in order to make the stables clean and sanitary and the course to follow to keep them so, in the way of acquiring better light, sunshine, etc. When necessary, he condemns a stable; then a notice is sent into the health department of his action. A certain time is given to the owner of the premises to make it right, and if he refuses to do so we simply ask him to keep his milk out of the city until such time as he makes up his mind to remedy the evil.

THE CHAIRMAN—May I ask you, Doctor, what jurisdiction you have beyond the city confines?

DR. MOORE—We have no jurisdiction. All we can do is this: If he refuses to do what we ask him, then we tell him to keep his milk out until he does do it. We have inspectors working all the time. They have nearly three hundred herds to examine; they probably get around every three or four months to each herd. We find in our vicinity that the dairymen in buying cows often make it a provision in their contracts that the cows shall be submitted to and stand the tuberculin test, or they refuse to make the purchase.

DR. REYNOLDS—I would like to ask Dr. Moore if in the beginning of his work in Syracuse he met with opposition on the ground that the tuberculin was injurious to the non-tuberculous cattle, because of a great number of abortions, etc.

DR. MOORE—We met with a great deal of opposition, and a great many farmers seemed to have data that warranted this opposition, but after investigating the subject I believe to-day that there is no such opposition on that ground. I remember that one man claimed that a part of his cows had aborted, and we asked one of our local veterinarians to go and find what was the cause of so many abortions among the cows of this dairy; he came back and reported to us that he believed it was due to the fact that the farmer fed his cows a large amount of salt, mixing it in their feed in too great a quantity. This man had been feeding his cows that way, and that this trouble was not in any way connected with the tuberculin test.

DR. D. E. SALMON, Washington, D. C.—The first thing I did was to test animals coming into the United States from other countries, and we found from 20 to 40 per cent. of pure-bred cattle coming in that were tuberculous, and we made a regulation that they should be tested in our quarantine stations, but we found there were so many that had tuberculosis that it was entirely too large a problem for us to attempt to slaughter those valuable cattle, so we put a man in Great Britain to test them before they left there.

Now, I have met in some quarters with the most intense opposition in doing anything, even excluding tuberculous cattle, and one reason of my coming here and presenting this paper was to get the interest and support of the medical profession. I believe that those engaged in this work need that support. They need the influence of the members of the medical profession, for it has such great weight in the country; not only because they are intelligent men, but because they are supposed by the people in the country to know about such questions, and it will go further than anything else to strengthen our hands in regard to the measures which should be adopted and enforced.

I have been thinking that when the time gets ripe for it, and it may be before long, there should be provisions made for preventing tuberculous animals going from one state to another, but we will be obliged to do a great deal of educational work before we can undertake that, and it is with the hope of doing that educational work largely through the medical profession that I came to this Section with the paper I have presented. It has been reported to us over and over again that you can go and slaughter dairy cattle every year if you please and yet the next time that you inspect the dairy herds you will find as much tuberculosis as you did in the first place. Dr. Moore has shown that the first year he had about 5 per cent., and the next year it was reduced to 1.25 per cent., and in three years it was reduced from 5.25 per cent. to one quarter of one per cent., which it seems to me is a most remarkable showing, and if half as good work as that can be done generally throughout the country by boards of health, it certainly would have an immense influence for good.

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## BLOOD EXAMINATION, FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.

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The relation of the laboratory to the practice of medicine is a topic which has been abundantly discussed in the recent journals. In our modern hospitals the clinical laboratory is considered indispensable; here, urine analysis, blood counts, serum reactions and bacteriological diagnosis are daily occurrences. Our journals are filled with reports of microscopic investigation; many of these articles are "preliminary" and our memory may leave us doubtful whether further examination has confirmed or denied these bids for precedence.

One of the most enticing of these laboratory studies is the examination of the blood. The beautiful proven results furnished the profession from time to time, and, still more, the brilliant promises of what may be expected in the future make the subject of absorbing interest to the scientific physician of to-day. This holds true, whatever his specialty may be. Many lesions of the eye are found to be explainable only by an examination of the blood—the retinal hemorrhages of leukemia, for example. The surgeon finds the number of leucocytes and the percentage of hemoglobin very important factors in diagnosis and prognosis. The specialist in skin diseases counts the eosinophiles. In internal medicine it may be said that the diagnosis of no case is complete until an examination of the blood has been made.

If now we expect that in a modern hospital the examination of the blood should become a routine like urin-

alysis, and that important aid in diagnosis, prognosis and treatment will thus be obtained, is it possible for us as general practitioners to gain some benefit from undertaking such examinations? This is the problem which the writer of this paper has stated for himself. His object is to determine how much of all the mass of published observations on the physical, chemical and microscopic examination of the blood may be utilized by us in general practice.

First, in considering this question we must recognize our limitations and rule out all hope of making original investigations. It is true that Koch discovered the bacillus tuberculosis while a general practitioner. Nor do I forget that this is a new and promising field for exploration. Few, however, have the ability requisite for solving the many existing problems in the study of the blood. Our humbler mission is that of sifting the proven results from those not yet substantiated and adapting them to our every-day requirements.

Another limitation that must be recognized is the time element. The hackneyed "busy practitioner" has several spare half-hours, if he will husband them, that might be utilized in the clinical examination of the blood of his patients. But it is manifestly impossible for him to give to the task more than fragments of time. Therefore, he must choose the less complicated methods. It is necessary that he have a table especially devoted to such work; that he have a north light, and that his microscope always stand ready before the window; that his stains and instruments are all ready labeled and at his elbow; that he have some one to clean up the apparatus after him and put all back in the proper place; that he have the steps of each examination tabulated and in front of him; that he keep everything scrupulously clean; and, lastly, that he does not undertake too much. Another precaution which Janeway tells us is not unnecessary even in larger laboratories, is to label each specimen and step, immediately, that the final conclusion may be applied to the right patient.

The financial side of the question is one which will occur to most of us, even when smitten by the scientific possibilities of such study. Something may be done with such an outfit as every physician should possess. A microscope with 1/5 objective will show the corpuscles, but satisfactory work can be done only with an immersion lens. The percentage of hemoglobin can be determined within 10 per cent. by letting a drop of blood fall on white paper and comparing it with Tallquist's color scale, but it can not be obtained more exactly without a hemoglobinometer costing about $40. The Thoma-Zeiss blood count apparatus may be termed indispensable and costs about $15. Hardly necessaries, the spectroscope and hematokrit, are the luxuries to be obtained as the fad grows on one. It may be said that $25 will start one at work and $100 more will be spent if his interest increases.

The third question that will occur to the general practitioner who determines to know something about the condition of the blood in his own cases is that of obtaining the technique. The very recent graduate is supposed to have acquired it. But we who took our degree before Ehrlich's writings had aroused general interest, must work out our own salvation with the myelocyte and megaloblast.

Fortunately, some good text-books have been recently published. Cabot is the best known. There is certainly no better book in English than the recent fourth edition. Stengel has a fine article in the "Twentieth Century Practice of Medicine" and will soon issue a text-book. Ewing's "Clinical Pathology of the Blood" is recent and very helpful. For those who read German there is a large literature.

Personal instruction is most valuable and time-saving. But even for those who have neglected the subject altogether, patient labor will enable them to master the necessary details. The essential features are soon demonstrated; considerable practice is required to bring out all that careful staining may show.

As already stated, the necessary apparatus is a twelfth objective, a blood-count apparatus, a hemoglobinometer, an ordinary urinometer, and a few stains. With these we are prepared to obtain the specific gravity of the blood, to count the red and the white corpuscles, to arrive at an approximation of the hemoglobin percentage and to study smears.

The specific gravity is an important matter. Stern's paper before the association last year gave a hint of its meaning. The significance of variations in the specific gravity is not great in the diagnosis of disease which may be labeled. It may, however, reveal something as to defective oxidation, ability for physical labor, and resistance to infective processes. We may yet see life insurance companies requiring the specific gravity of the blood.

The method of Hammerschlag is accurate to one or two points and much cheaper than any other. All that is required is a good urinometer. In it chloroform and benzine are mixed in such proportions that a drop of blood neither rises nor sinks, when the specific gravity of the mixture determines that of the single drop of blood. Care must be taken that no air mixes with the blood drop, and the determination must be made before it becomes altered by the media. The instrument must also be perfectly dry that no water floats on top of the chloroform and is taken up by the blood. I have found the specific gravity varying from 1032 to 1062, so that a wide latitude exists. Excepting in dropsy, leukemia and pernicious anemia its variations correspond quite closely to the hemoglobin percentage.

The estimation of the bulk of red corpuscles is made by the centrifuge. It is quick and fairly accurate, and also corresponds closely to the blood count in many conditions, but not in all. It is well worth doing if one has the apparatus. The tubes are easily filled by capillary attraction if the outer end is held lower than the other, and they are kept clean by a horsehair.

That for hemoglobin is least accurate of all the tests. Observations are published in which variations of 1 per cent. are noted, but a margin of error of 5 per cent. at least must be allowed. It all depends on a color scale in the fine gradations of which the male sex is notably deficient. No standard yet manufactured is of the same shade as the blood when diluted; Miescher's is said to be the best instrument for its determination. Two plain indications are obtained by its determination: 1. A surgical operation should not be undertaken if the hemoglobin is as low as 30 per cent. Deaver, in a recent paper, cited two cases operated on successfully in spite of this rule, but still the rule holds as good as any in our art. 2. In diagnosis pernicious anemia is differentiated from cancerous cachexia by knowing that the hemoglobin ratio is higher than normal in the former and lower in the case of cancer. The grade of chlorosis and hence its chances of cure is determined by the hemoglobin test compared with the blood count.

The blood count is of importance in many ways. Extremely accurate work to be published requires the

counting of a large number of fields, but practical results are obtained in fifteen minutes.

A great increase in the number of lymphocytes means leukemia, which can be diagnosed in no other way than by the assistance of a blood count. A leucocytosis of from 12,000 to 50,000 means an infection, most often with formation of an abscess. Its importance in differential diagnosis is often second to no other symptom, but is never pathognomonic. Marked examples of its usefulness are in distinguishing appendicitis from typhoid fever, intestinal perforation in the course of typhoid, and the onset of pneumonia when the physical signs are masked. The opposite condition, leucopenia, is found most markedly in fatal septicemia. The diminished leucocytes may be as valuable as the Widal reaction in differential diagnosis of typhoid.

In considering moderate grades of leucocytosis the many physiological factors causing increase in the white corpuscles must be remembered. Cabot enumerates these agencies as the leucocytosis of the newborn, of digestion, of pregnancy, of the postpartum, of the moribund, and after violent exercise, massage and cold baths. These influences may raise the count normal to that individual 33 per cent. and must be kept in mind. The leucocytosis caused by anesthesia is so transient that it is not liable to confuse us.

In general it may be said that suppurative, serous and gangrenous inflammations produce marked leucocytosis. We must not forget that the leucocyte count falls when the abscess is walled off.

We are promised that the study of the leucocytes may be helpful in the prognosis of pneumonia. Absence of the usual leucocytosis looks to a fatal termination, while the return of the eosinophiles, absent at the height of the disease, foretells a favorable crisis.

A diminution of the number of red corpuscles is of great importance. It may be said that iron has frequently been given to a patient with white skin who had no anemia and derived no benefit from its use. The contrary is also true. A blood count furnishes the only rational data for the use of iron and arsenic. Pernicious anemia would be found in many cases supposed to be cancer of the stomach if the blood examination were more common.

The study of the stained specimen is the most interesting of all the steps in the examination of the blood. It is here that the novice will feel most intensely his deficiencies. Now his text-book directions fail him, and confusion, not wisdom, results from a multitude of counsellors.

His troubles begin with making the smear. But after one learns just how, it is easy to prick the ear quickly and deeply, to wipe away the first drop, to resist somewhat the temptation to squeeze out the blood that is so loath to flow when you want it, to touch to a very small drop a cover glass that has been carefully washed in soapsuds and alcohol and polished by rubbing. Upon this another is to be laid and the two quickly drawn apart by sliding. After drying in the air, which requires but a few moments, we must employ one of the many staining methods recommended. For the amateur it is better to use no more than one or two, and thoroughly familiarize himself with these. Cabot says that he now uses no other than Ehrlich's triacid stain. He tells us the trick of success with it, which enabled me to use it after I had given up the stain in disgust. The specimen must be thoroughly heated before it is used—heated until the blurred-brown color of the reds which you get in underheating specimens, is replaced by a golden yellow. Then the details within the leucocytes will be found delicately differentiated.

The stain easiest to use is Gollasch's. The smear is fixed by immersion for a quarter of an hour in absolute alcohol, to which ether may or may not be added. The stain, which is composed of hematoxylin and eosin, is applied for fifteen minutes. If you are interrupted the specimen is not spoiled by overstaining, as occurs with the methyl blue and eosin methods. The white corpuscles are so plain that they are easily studied with a 1/5 objective. Goldhorn's polychrome stain, originally perfected for studying the malarial germ, has proved to be one of the best for general work; clear directions accompany it.

The study of stained specimens is eye-destroying and time-destroying work. Here it suffices to simply enumerate the details which a general practitioner may hope to see and what they may indicate to him. The red corpuscles may be deformed, not the result of faulty technique. This poikilocytosis means very grave anemia. The centers may not take the eosin stain, indicating a deficiency of hemoglobin, which is chlorosis or grave secondary anemia. The malarial germ may be seen. Nucleated red cells may be present—the blasts. Normoblasts mean a too active proliferation of red corpuscles, the marrow throwing them out unfinished. Megaloblasts are of grave import, indicating a fatal type of anemia.

Turning now to the white corpuscles, we notice the relative proportion of polymorphonuclear, lymphocytes and eosinophiles. Leucocytosis being already established by the blood count, an increase in the relative ratio of mononuclears would point to leukemia; in the polynuclears, to the leucocytosis of infection. Two types of leukemia itself are determined by studying the greatly multiplied white cells. The presence of myelocytes indicates the spleno-myelogenous variety, while the lymphatic is shown by the great number of lymphocytes. Iodophilia may reveal the presence of pus somewhere in the system. Eosinophilia may enable us to detect a case of trichinosis which has been called rheumatism.

My endeavor has been to show that the routine examination of the blood may be profitably made by the general practitioner.

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## BRAIN TUMOR

### DEVELOPING IN A CASE OF PERIPHERAL NEURITIS, THE LATTER OBSCURING DIAGNOSIS—OPERATIVE REMOVAL OF TUMOR—RECOVERY.

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AND
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MEDICAL HISTORY AND DIAGNOSIS BY DR. M'CASKEY.

H. C. B., aged 34, farmer, married, was referred by Dr. R. S. Wilson, of Berne, Ind., Sept. 8, 1900. The principal complaint was that of weakness and pain in the left leg, "heart trouble," and general nervousness, with severe pains in the head. Family history appeared clear. The patient's health had always been good previous to an attack of typhoid fever ten years ago. This in itself was uneventful excepting that it left some permanent damage to the digestive organs, and he has had some "stomach trouble since." About two years after the attack of typhoid fever he began to have pain in the calf of the left leg. This pain had continued since, growing better and worse, the patient insists, as his stomach grew better and worse. During these years he had been a constant sufferer from pain and extreme "bloating" after meals.

About six months prior to my examination the pain in the

left leg became much worse and the weakness increased to such an extent that the limb was handled very awkwardly, and it frequently gave way, causing him to fall. The pain had also extended upward involving the thigh and hip, and had in addition appeared in the calf of the right leg. He had been a very heavy smoker, using about an ounce of tobacco daily. This may account for the heart disturbance.

There was decided paretic weakness of the left leg and arm. This was first noticed in the fall of 1899, and when husking corn, he had difficulty in breaking off the ear, owing to weakness of the left hand. At about the same time motor weakness of the left leg was manifested by a difficulty in handling the leg when wearing a heavy rubber boot. With a light shoe no difficulty was experienced. From this time on there had been a gradual increase in motor weakness, which became practically a complete paralysis in the left arm a few weeks later, and about the same time the left side of the face became very slightly paretic. The tongue and extrinsic eye muscles were unimpaired. There was no impairment of the sensorial function of the skin, excepting over the left leg from the knee downward. Over this area there was complete thermo-anesthesia, with marked impairment of tactile and pain sense. There had been neither tinnitus nor vertigo, and hearing was normal on both sides.

Vision was 18/20 for each eye—practically normal. The visual fields were carefully tested by the perimeter and found normal, in respect to the form, size, and relation of color fields. Ophthalmoscopic examinations showed the beginning of optic neuritis in the right eye, without protrusion of disc; later this became more marked, and appeared in the left eye.

The bladder sphincter was very weak. When he felt the desire to urinate he would frequently be unable to get off the porch into the yard. There was no impairment of rectal sphincter.

Owing to the history of the case a complete examination of the digestive organs, and general study of metabolism was considered necessary.

Uranalysis: Total quantity for 24 hours, 2400 c.c.; sp. gr., 1010; total solids, 55.92 grams; reaction, acid; no albumin or sugar; urea, 1.3 per cent., or 31.2 grams; uric acid, 1.73 grams; ratio of urea to uric acid, 30.1; total chlorids, 12 grams; there was no phenol nor skatol in pathologic amounts, but a very large amount of indican.

The blood examination showed 5,200,000 red cells, 105 per cent. of hemoglobin, with 6900 leucocytes, during digestion.

Stomach: In the fasting state, fourteen hours after the last meal, the stomach contained 20 c.c. of an amber-colored fluid, containing .09 per cent. of lactic acid, with epithelium, leucocytes, and a variety of micro-organisms.

Quantity of gastric juice (Ewald test breakfast) obtained was 100 c.c.; no free HCl; faint biuret reaction; starch digestion complete.

Examination of colon contents showed a moderately severe chronic mucous colitis.

The case presented a "complication of diseases." The first coloring in the diversified clinical picture was the chronic gastro-enteritis which he received as a legacy from the typhoid fever. Following close on it were the phenomena of a chronic toxemia. Gastric motor insufficiency, with atrophy of gastric glands, easily gave the first link in the chain. At the time of my examination the main question of the diagnosis rested, of course, in the nervous system. There were indubitable indications of both peripheral and central disease, the precise nature of which was determined upon the following briefly outlined data.

Electrical examinations gave the following result: In right peroneus brevis and left gastrocnemius the galvanic formula was reversed. With 15 ma., and electrode of four square cm. area, a.c.c. > c.c.c. In all other muscles, c.c.c. > a.c.c., or in some, e. g., left gastrocnemius, were very nearly equal. In most of the muscles 10 ma. gave quite as strong a reaction as 15 ma. in the two muscles above mentioned. The faradic response was notably lowered in all the muscles of the legs, most marked on the left side, while in the left gastrocnemius the tetanic contraction continued for some seconds after cessation of the current, and required a current almost beyond the endurance of the patient to produce a contraction at all.

The combination of partial anesthesia, motor weakness, and the electrical reactions of degeneration in the left leg could leave no possible doubt as to the existence of a peripheral neuritis, which had to a less extent involved the right leg; and the origin of which could be most plausibly sought in the chronic toxemia resulting from gastro-intestinal disease.

The coexistence of motor weakness of the left upper extremity, however, without sensory or electric disturbances, showed that something more than a peripheral lesion existed, and presented a very difficult problem of diagnosis with reference to the paralysis of the left lower extremity, viz., was it exclusively peripheral, or was it also in part, and perhaps principally, a part of a hemiplegia of central origin? The supervention of paretic weakness of the left side of the face, which occurred later while the patient was under observation, proved the existence of a progressive lesion of the right motor area of the brain. After a careful study of all the data, the diagnosis of a brain tumor was added to that of multiple neuritis of toxic origin.

As the symptoms were growing progressively worse, I advised an operation, and the patient, still able to walk a quarter of a mile, entered the hospital for that purpose.

The operation was performed Feb. 6, 1901, by Dr. M. F. Porter, who removed, at my suggestion, a large quadrangular section of the calvarium, with the superior posterior angle just back of the upper end of the Rolandic fissure, and about one cm. from the sagittal suture, and the anterior inferior angle just behind and slightly below the stephanion. As it was nearly vertical, the location of these two angles will accurately indicate the field uncovered for the operative procedure.

I will discuss only a few points of neurological interest, passing for the sake of brevity many others that deserve attention. To aid in identifying motor centers when the bulging cortex was exposed, with no neoplasm in sight, I applied a pair of pointed wire electrodes, connected with a faradic battery, to the surface, and soon found the arm center. From this as a starting point the area of the leg center was thoroughly faradized without the slightest response. The subsequent steps of the operation showed that the tumor was for the most part directly beneath the leg center. It will be recalled that the paralysis of the arm, as usual in central lesions involving the motor area or tracts, was greater than that in the leg. The failure of the leg center to respond, under the circumstances, appears to me to be of considerable interest, and suggests the possibility of this test being available in exploratory operations to indicate the site of a suspected subcortical lesion.

There was absolute paralysis of the right arm and leg following the operation, but in about eight weeks the patient was able to walk out of the hospital, and motor power of the leg has slowly improved since, so that it is now much better than before the operation. The arm remains so weak as to be entirely useless.

Another phenomenon of considerable interest, although not at all new, was the extensive movements of the paralyzed arm, when the other arm was moved in the act of yawning or some similar general movement.

This occurred under my own observation several times while the arm was absolutely paralyzed so far as voluntary movements were concerned, the patient not being able to move a finger in the slightest degree. Such movements suggest some very interesting physiological questions, the discussion of which would be outside the intended scope of this essay.

The histological diagnosis was glioma, with apparent beginning sarcomatous degeneration, and, of course, a recurrence is anticipated. Sections of the tumor were examined under the microscope and show the structure of the neoplasm.

I will only refer to one other point, namely, the large size of the neoplasm, and the extreme pressure to which the right hemisphere and the ganglia were subjected, without permanent loss of function, although this was very nearly complete in the arm center. The median portion of the tumor had forced its way beneath the concave margin of the falx cerebri, and a considerable mass of it was removed from the left side of the cranial cavity. The finger was easily passed from the large space vacated by the tumor in the central region of the right hemisphere beneath the sharp concave margin of the falx, revealing a considerable space to the left of the falx.

OPERATION AND SURGICAL HISTORY BY DR. PORTER.

The operation was done at the St. Joseph Hospital. After the usual preparation the patient was etherized by Dr. B. V. Sweringen. A large horseshoe-shaped flap was turned down and a quadrangular section of bone removed, partly by the DeVilbiss instrument and partly by use of a Gigli saw. Nothing unusual was noticed through the dura, and it was therefore opened by turning a flap downward. The cortex presented nothing unusual to sight or touch. It was remarked, however, that the bulging of the brain showed an unusual intracranial pressure. On exploration with a needle a sense of increased resistance was imparted to the finger at a depth of about a half-inch below the surface. This could be felt at several points, and thus it was proven not to be due to accidental contact with a blood vessel. The finger was now introduced and passed around the tumor, which proved to be ovoid in shape, of a trifle greater consistency than the brain with a capsule of slight resistance, which could easily be separated from the surrounding brain, but not without producing free hemorrhage. From the falx cerebri the tumor was separated by a very thin stratum of brain tissue above, but was in contact with and passed under its lower border, extending fully a quarter of an inch to the left of the middle line. The tumor was about the size of a pullet's egg. Owing to the friability of the capsule and also because of a desire to minimize the amount of injury done to the brain, the tumor was removed piece-meal. The hemorrhage, which was free, was controlled by gauze packing. The bone was not replaced. The dura and scalp were sutured save at point of exit of gauze and a dry dressing applied. At the end of 48 hours the packing was removed and a wick of gauze placed for drainage. This was removed a few days later. The wound healed without suppuration, and from a surgical standpoint the recovery was uneventful. The man was cured at once of head pain, regained full use of his leg, and is able to raise the paralyzed arm to the head. I am informed by his family physician, Dr. Wilson, that at the present writing, Nov. 9, 1901, there is some return of head pain and that there are present some mental symptoms. These symptoms indicate a recurrence of the growth, which was predicted at the time of the operation. On December 27 I was informed by Dr. Wilson that the head pain and mental symptoms had entirely disappeared and that in his opinion the patient would make a permanent recovery. More time must elapse, of course, before this question can be settled.

I wish to refer to but one point in the technique, and that is the use of the Gigli saw. For removing large sections of the skull I regard it as superior to any other instrument. For removing quadrangular flaps four small openings are made with a trephine, the end of the saw is passed between the dura and the bone from one opening to the other, caught by a pair of forceps or hook, pulled out and the intervening bone sawed through. This is repeated until the section is completed. If one wants to do an osteoplastic operation the bone may be sawed through, except at the base where the internal table alone may be divided, thus facilitating fracture and insuring against the possibility of immediate or late untoward effects from spicules of bone. The saw lends itself admirably to the removal of sections of any shape save those having curved borders. Aside from the ease and rapidity gained by the use of the saw, there is no hemorrhage from the diploe divided by it.

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## SURGICAL CORRECTION OF MALFORMATION AND SPEECH DEFECTS DUE TO OR ASSOCIATED WITH HARE-LIP AND CLEFT PALATE.*

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MILWAUKEE, WIS.

(*Concluded from page 172.*)

ADULTS AND CHILDREN WITH PERMANENT TEETH.

The treatment of cases of the fourth class—shown in Figs. 14, 15, 16 and 17, all of the same case—is in all respects practically the same, except that the appliance needs to be made of strong material, because permanent teeth form points of attachment and older jaws give more resistance. When it is desired to hasten the contracting process, the patient is anesthetized and the surgical engine bur passed along the posterior portion of the buccal side of the jaw just under the teeth and the external plates of the maxillæ cut through, this being the point at which the greatest resistance is offered, and when weakened in this manner pressure is made by the use of suitably adjusted forceps, which bring the two sides as nearly together as possible without complete fracture. The appliance and screw hold the parts in place, and continuous turning of the nut quickly brings them in close approximation from the bicuspids forward, altering the occlusion of the jaws so that upper molars, instead of occluding with buccal cusps outside the buccal cusps of inferior molars will meet upon the inside. The width of a molar tooth can be taken from the width of the space between the bones at the fissure without interfering with the proper performance of the function of mastication, and all who are familiar by practical experience with cases of this character will readily understand what a considerable difference the width of a molar tooth less space to cover must be in relation to successful results, so far as securing a covering is concerned, and also for having less tension of soft palate tissue in the effort of speech. The principles of this method have long been followed

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee.

by orthopedic surgeons in the treatment of malformation of other bones and by dentists in correction of irregularities of the dental arch. What is claimed for the method outlined is that for the first time systematic application of all these principles has been combined with methods of surgical procedure which make it possible to operate with comparatively complete success upon all cases without regard to age or the nature of the cleft, provided there be no serious physical bar to operation. If then this can be done at practically any age, it becomes important for us to consider all these matters in relation to results from the standpoint of acquiring perfect speech. It naturally follows that having thus supplied a covering for the roof of the mouth of living, healthful tissue and the same for the soft palate, that a marked improvement in speech would be expected, yet this is not so, and the question as to "why it is not so" embodies in itself many considerations. While flexibility of the velum after operation and absence therefrom of scars with cicatricial tissue to stiffen and to interfere with the muscular movements are desirable, even indispensable for its perfect vocal assistance, the real reason why the speech of adults improves so little is the same as that which causes an American to find it difficult to speak French, German or other foreign language, and when he does so to think the sounds that he makes the same as those made by natives in pronounc-

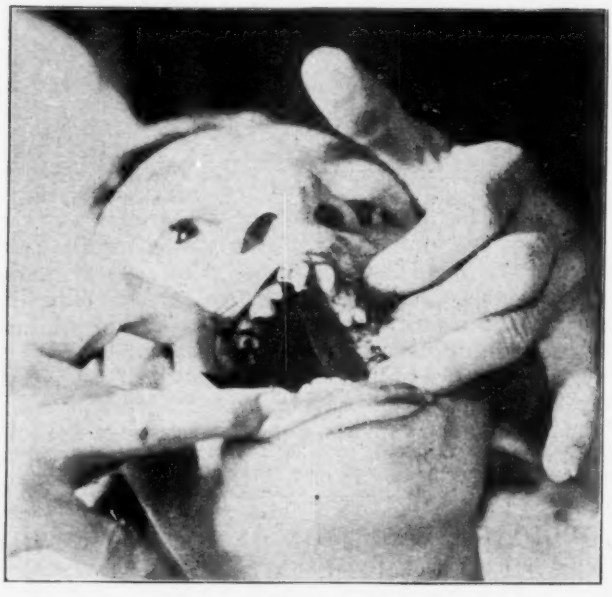

Figure 14.

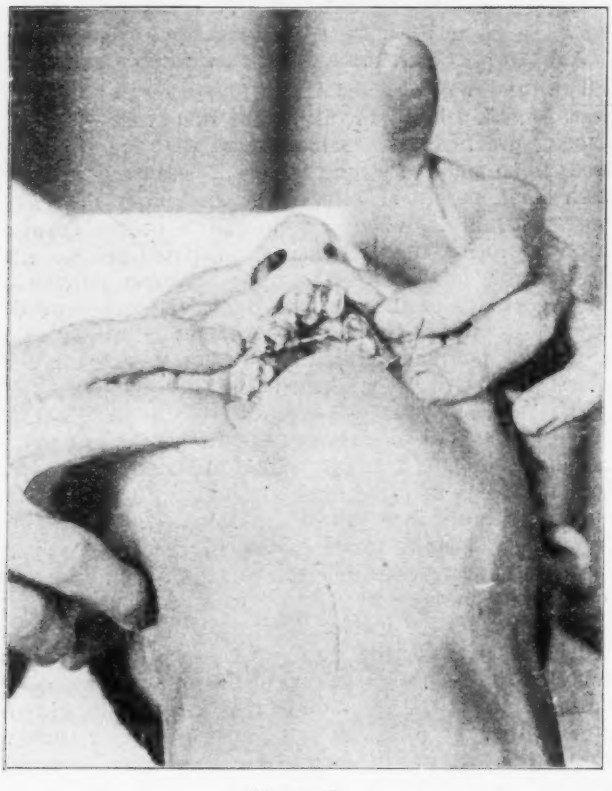

Figure 15.

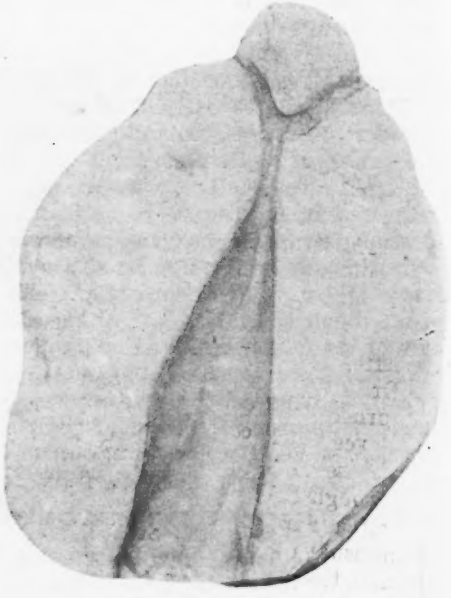

Figure 16.

Figure 17.

ing the same words, for he is conscious of no distinguishing difference, whereas differences do exist in a marked degree and are quite noticeable to other people. There are several elements in the explanation of this fact that are worthy of consideration and lead us directly to a

Figure 18.

study of the mechanism of speech. To get perfect speech as a result of palate operation we must, 1, supply tissue, which will serve to prevent the nasal sound by shutting off the nasal passages at the proper time; 2, the

Figure 19.

ear must become so trained as to distinguish readily incorrect sounds in the pronunciation of words; 3, the brain centers which receive the impressions that excite sound vibrations must carry to the motor centers messages that will set the right muscles in action in the right way. Invariably with older patients is it found that efforts to speak in spite of the cleft palate deformity have caused greater development of muscles, the application of which are usually a hindrance instead of a benefit.

### SPEECH CENTERS.

The so-called area of speech as commonly conceded involves something more than a distinctly outlined portion of the brain structure, but in a general way it may be understood that in and about the Sylvian fissure, the third frontal convolution, the Rolandic area, and that particular portion known as Broca's convolution, the various psychomotor centers necessary to vocalization are located, and a consideration of the association of these parts to each other will convince the careful reasoner that in the correction of these oral deformities there are many difficulties to be considered beside merely the task of securing an adjustable veil which will serve to close or open certain air passages during the act of speech as in the normal individual. A study of the brain

Figure 20.

structure and of the principles upon which modern brain surgery is based, proven over and over again through experiments upon lower animals and by clinical experience in the study of aphasia and other affections of speech due to diseased conditions, makes clear the fact that the perfect formation of words and their construction into intelligent sentences requires the coöperation of many distinctly different nerve centers.

The first cry of the child is merely a sound caused by reflex action of the muscles without any guiding influence exerted by the faculty of reason. This is followed by the first efforts of sound to represent intelligent words as objects begin to be recognized, and gradually this is continued and extended until expression of ideas in speech has become possible. It will be readily understood that if these efforts have been upon normal or correct lines, the muscular activity necessary to sound producing must have been guided by the proper nerve centers, which will have caused an increase in the brain development of those centers, and the messages sent

from the motor tract to the muscles which are concerned in the utterance of words will be in all respects correct, therefore, the habit of proper speech will have become an established fact; but, on the other hand, if a deformity has existed from birth by reason of which the normal use of certain muscles will have been greatly restricted and the use of certain other muscles not commonly used in the process of word enunciation, it will have received more stimulation than would have been the case had there been a perfectly formed mouth and throat. The result must invariably be an increased development of the nerve centers which are injurious to speech, with a faulty development of those that are necessary to perfect speech. This would be termed a habit, but the word habit conveys too restricted an idea of the condition. For example, when the eye through its retinal image registers upon the brain structures the particular nerve stimulations which in time shall become associated with the name of an object, its form record is established by

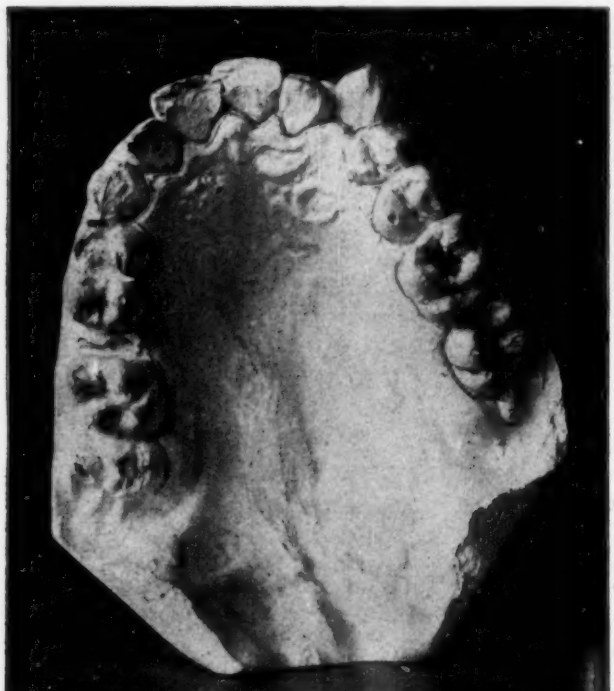

Figure 21.

what may be known as the visual memory centers. In the same manner the sound of the name of the subject through vibrations of the auditory nerves, and organs of hearing becomes fixed in the auditory memory centers. Precisely also are the somesthetic areas affected by the tactile sense, and memory of the sense of touch, as well as taste, smell or other stimulus that may have been excited by or associated with any particular object, and when the sensorium takes consciousness of this object, the name of which has become known to it, there is required the coördination between these different memory centers in order that the proper messages may be sent to the motor centers through which certain muscles may be set in motion in the proper manner to produce the sound which may be clearly recognized as the spoken name of the object.

It is known that in speech the muscles of the chest which are responsible for expiration, the muscles that raise and lower the larynx, those that tighten the vocal cords and tip the hyoid bone, as well as resounding properties due to the nearness of the spinal column, and the coöperation of the forces that are applied in raising and lowering the soft palate, the adjustment of the tongue, proper action of the muscles of the cheeks and

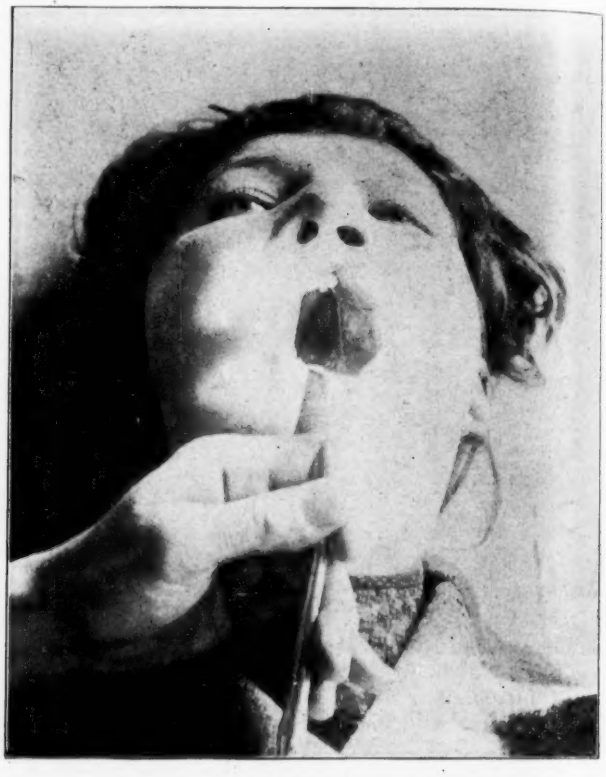

Figure 22.

lips are all necessary for the utterance of even a single word. If, therefore, during the life of the individual, through faulty operation or adverse action of these agencies, wrong messages have been constantly sent to

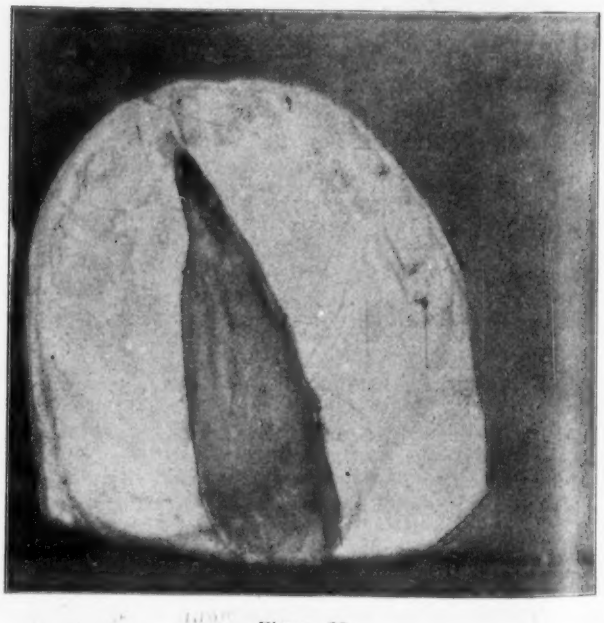

Figure 23.

any portion of the brain concerned in making a certain sound, and if the auditory memory centers have registered by the constant hearing imperfect sounds for specific words, which will accordingly have caused the devel-

opment of brain structure which is all active against correct speech, and if there be an insufficient development of those centers which are needed for perfect speech, how great becomes the difficulty of giving a speech power to individuals in the face of all these acquired disadvantages.

It is too narrow a view of his own special portion of the sound-making apparatus that has so limited the oral surgeon in his consideration of this subject in the treatment of cleft palate. There has been laid down the absolute necessity of having a soft palate which will be capable of entirely excluding the passage of the air to the posterior nares, thus to overcome nasal tones, but a well-known writer has recently stated that this is a false idea, since there are many times in speaking and singing, during which the passage of the air through the nares is not excluded, and yet no nasal tone is noticeable. As a matter of fact both the quality and tone are largely decided before the sound wave has reached the soft palate.

Practical examples of the truth of these theoretical principles are shown by the following illustrations. Figs. 18, 19, 20 and 21 show photographs and casts of the mouth of a patient before and after operation. The cleft was confined to the soft palate alone.

Figs. 22 and 23 show a very large cleft extending through both hard and soft palates. These patients are girls and about the same age, yet the speech of No. 22, with a much greater deformity, was somewhat clearer than No. 18 before operation, with a smaller opening in the palate. This is particularly interesting because an unusual development of the muscles that raise the tongue and constrictors of the pharynx had enabled No. 22 to force the back of the tongue up into the cleft and narrow the pharyngeal opening so as to overcome in a measure at least the deficiency, but the unusual muscular action will undoubtedly militate against success after operation when case is completed. No. 18, having been given almost a perfect velum—see Figs. 19 and 21—one quite flexible and free from the thickening of scar tissue, while much improved in ordinary conversation retains a good deal of the characteristic disagreeable vocal sounds, and when excited becomes almost unintelligible, yet when reciting a little piece that I have recently taught her to say properly, the involuntary office of wrong auditory and other memories being by effort excluded, she has nearly perfect vocalization, marred only by a slight nasal tone not more than many persons with normal palates acquire through catarrh or habit, and thus we have clearly established the fact that only a few weeks after operation it is possible with a little care to get nearly perfect speech. A summary of conclusions from the foregoing would be as follows:

1. The risk of operation in early infancy is unnecessary except where vitality of the child is threatened by malformation.

2. The most favorable time for operation is after the deciduous teeth have been erupted, but before the habit of speech has been acquired.

3. Difficulty of acquiring correct methods of pronouncing words after operation in adult cases can only be overcome by careful mental training.

4. There can be no cases which can not be improved by treatment and operation, both with regard to health and speech, no matter what the age may be, providing the cooperation and assistance of the patient may be assured.

OPERATIVE TECHNIQUE.

The post-operative treatment of these cases presents certain difficulties a due regard for which is essential to success. Wounds of the mouth, however great may be the antiseptic precautions at time of operation, are always in greater or less degree subject to infection by mouth bacteria, the tissues of the approximating surfaces in uranorrhaphy and staphylorrhaphy have, in addition to bacteria-laden buccal fluids below, nasal secretions above in direct communication without the possibility of protection by any form of dressing; moreover, the tension upon sutures in such cases and the tendency to tear or slough out renders every possible precaution, tending to the preservation of the integrity of the parts imperative to the last degree. Powerful germicides are excluded, owing to their toxic properties and the impossibility of preventing them from being swallowed if freely used for irrigation; many of less germicidal strength, but otherwise harmless, are useless because of unavoidable dilution in the mouth.

Escharotics are obviously to be discarded as destructive rather than favoring the process of granulation. My own practice is as follows:

Preparation is by irrigation of both oral and nasal cavities with boracic acid solution, thorough wiping of mucous membrane surfaces with sponge and 3 per cent. carbolic solution. After-treatment consists of cleansing the mouth every half-hour alternately with dioxogen and sterilized water, in infant cases, while for adults dioxogen and 3 per cent. carbolic are alternated every half-hour. These are applied with a small glass syringe, and by the use of little swabs made of absorbent cotton rolled upon toothpicks for convenience. Dioxogen is immediately effective, is non-toxic, and has the valuable property of freeing by its action the dead mucous cells and animal fats that cover the mucous membrane of the mouth and resist complete destruction of germs thus protected unless some agent be applied which will mechanically cleanse and effectually remove them.

Infants suck at or attempt to swallow everything that is put into their mouths, therefore it is impossible to use any solution constantly without more or less being taken into the stomach. Dioxogen and sterilized water are beneficial rather than harmful, but if poisonous drugs were used the danger would unquestionably be a serious one.

NOTE.—I have found it necessary to use the term dioxogen, as indicating a preparation of $H_2O_2$ of unquestioned purity, because a quotation from a former paper was printed and scattered broadcast without my knowledge or consent by the manufacturer of a preparation of $H_2O_2$ that I would under no circumstances feel it safe to use in cases when acid impurities might be seriously injurious, as would be the case in any but more particularly with infant patients.

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**Prevention of Precipitation of Oxalates in the Urine.**—Klemperer states in the *Berl. Klin. Woch.* of December 30, that it is not necessary to banish the oxalates from the urine to prevent the formation of oxalate calculi. This can be accomplished by merely rendering the urine able to keep them dissolved. He announces that when the urine contains a certain proportion of magnesia, there is no precipitation of oxalates, as they are dissolved by the magnesia. The food should contain little lime and considerable magnesia. Milk, eggs, tea, cocoa, spinach and cabbage should be avoided in cases where there is a tendency to oxalate calculi. The diet should consist of meat, fats, bread, farinaceous foods, rice, peas, beans, apples and pears, with considerable fluids. The oxalate tendency does not contra-indicate alcoholic drinks nor coffee. This diet can be supplemented by more magnesia, as for example, 2 gm. of the sulphate a day.

# TRAUMATIC ARTERIO-VENOUS ANEURYSMS OF THE SUBCLAVIAN VESSELS,

## WITH AN ANALYTICAL STUDY OF FIFTEEN REPORTED CASES, INCLUDING ONE OPERATED UPON.

RUDOLPH MATAS, M.D.

NEW ORLEANS.

*(Continued from page 176.)*

### HISTORY SUBSEQUENT TO OPERATION.

The subsequent career of this patient after the operation was marked by many incidents which delayed his convalescence and caused us much anxiety as to the ultimate fate of his arm, but never gave us serious apprehensions as to his ultimate recovery.

Some idea may be obtained of the tediousness of his convalescence by noting that he was admitted to the hospital on September 8 (fifth day after the injury), was operated on September 13 (ninth day), and was discharged Nov. 12, 1900 (sixty-first day), and even then his arm had not healed, and he was not entirely discharged by Dr. Power at his home until April 19, 1901 (158 days after leaving the sanitarium), when he discarded his last dressings. He was, therefore, under treatment a little over seven months from the date of the operation. It is just to state that this delay in his complete recovery was caused almost entirely by the sloughing which took place in the hand and forearm, which followed immediately after the ligature of the artery. The wound in the neck healed *per primam,* and never gave us the least anxiety. With the exception of a stitch abscess it healed without interruption and was entirely well on the twenty-second day, when all dressings were discontinued in the neck. The necrotic changes that took place in the hand and forearm are of such rare occurrence after ligations of the subclavian vessels that they deserve special reference in this history. My notes in reference to this point read as follows:

September 14, 9 a. m. (the day after the operation), patient's general condition much improved. Pulse, 110; temperature, 99.5. Patient complains of little pain in region of wound, which, in addition to copious aseptic dressings and spica bandage, has been covered with a square flat bag filled with bird shot, weighing half a pound, to further compress the part and favor the obliteration of dead spaces.

The cotton batting and loose bandage are removed from the arm, and I am painfully surprised to find evidences of complete mortification of several digits and parts of the palm of the hand and forearm; the skin in some places on the ulnar side appears to be necrotic up to the elbow. Complete insensibility of the entire extremity up to the bend of the elbow exists. After washing the extremity in hot water and alcohol, the capillary circulation is found to exist in considerable areas over the dorsum of the hand, wrist, and forearm; but the palm and fingers, especially the little finger and the thumb, appear to be hopelessly lost. No radial, brachial, or axillary pulse can be felt. The arm down to the elbow is sound, warm, and sensitive. The hand is shriveled, pale, waxy, cadaveric; here and there a few patches of capillary extravasation or stains; no swelling, edema or violaceous discoloration; no signs of venous asphyxia; the superficial veins, which before the operation were prominent and turgid, had now become invisible. The mortification is evidently due to arterial ischemia. Arm wrapped up loosely in cotton batting and surrounded with hot bags.

At 3 p. m. the temperature had risen to 101; pulse, 136. Evidently the reactionary changes due to the sloughing were causing the disturbance, because there was nothing in the wound to account for the change. At 4:30 p. m., pulse 130; at 7:30, pulse 128, temperature 101, skin moist, general condition excellent. The hand, at wrist and forearm, is now beginning to show edema, and there are dry patches of dark extravasation over the mortified areas. The arm above the wrist and elbow and in proximity to the dead parts is hot and presents a dusky red erythematous color.

On September 20 the following observations are recorded:

The affected arm is still much swollen and edematous, though the swelling is now subsiding. The thumb-nail and skin in palmar and dorsal aspects of the thumb *mummified,* shriveled, dry, purplish-black in color; tip of index finger and nail, black and dry; ring finger to first knuckle black; two large black, dry patches in palm of hand and base of thumb; another large, black, leathery patch over the entire hypothenar region. A large blister has formed extending over the ulnar and dorsal aspects of the forearm.

The arm was treated by daily washing with hot lysol solution—1 per cent.—followed by complete alcohol bath, after which it was thickly covered with an ointment consisting of ichthyol and zinc oxid and vaselin; over the forearm and arm; where the skin appeared to be red and inflamed, compresses of dilute lead and opium lotion were kept constantly applied. On September 28 I left the city for a month's vacation and transferred the patient to Dr. Gessner, who continued to attend and dress him carefully until my return, October 31, when the following observations were noted:

General condition excellent; temperature and pulse normal; good appetite; patient sits up. Wound in the neck completely healed since September 20, requiring no dressing. The most important changes have taken place in the hand and forearm. The little finger had dropped off, leaving a large granulating surface in the hypothenar region; a large granulating surface over the thenar eminence, where the skin had also sloughed off. The thumb had sloughed and had to be excised. The first metacarpal is exposed on the palmar side. A deep palmar tunnel connects the granulating surfaces on the two sides of the hand. This tunnel in the palm is caused by the sloughing of the long flexor tendons and some of the interossei. The ulna from its upper third down to the wrist-joint is exposed, even the periosteum being lost. Only the styloid process and articular end are sound and covered with soft parts. All the pronato-flexor mass of muscles and other soft parts covering the ulna have sloughed off, leaving a granulating tissue on the periosteum, apparently trying to cover it. A long sinus, caused by the sloughing of the supinator and extensor muscles and brachialis anticus, can be traced upward into the lower third of the arm. Four and a half inches of necrotic ulna were excised with the Gigli saw; the first metacarpal was enucleated out of its periosteal shell. The nail and terminal phalanx of the index were removed; the gaps in the palmar side were covered over with dorsal cutaneous flaps. A free incision was made from the forearm to the arm into the external intermuscular septum to remove the sloughs formed by the supinator and the brachialis anticus; the musculospiral and ulnar nerves have been lost in the deep sloughing of the forearm; there is complete anesthesia of all parts below the elbow.

After this the condition of the arm steadily improved, and the patient was discharged November 12, in very good general condition, but still suppurating through several granulating sinuses. After this, his arm was attended to at his home by Dr. Power, who had to open another sinus resulting from extension of suppuration in the arm. He also wrote that the wound in the neck had reopened at one point for a few days, but had healed without discharging any ligatures.

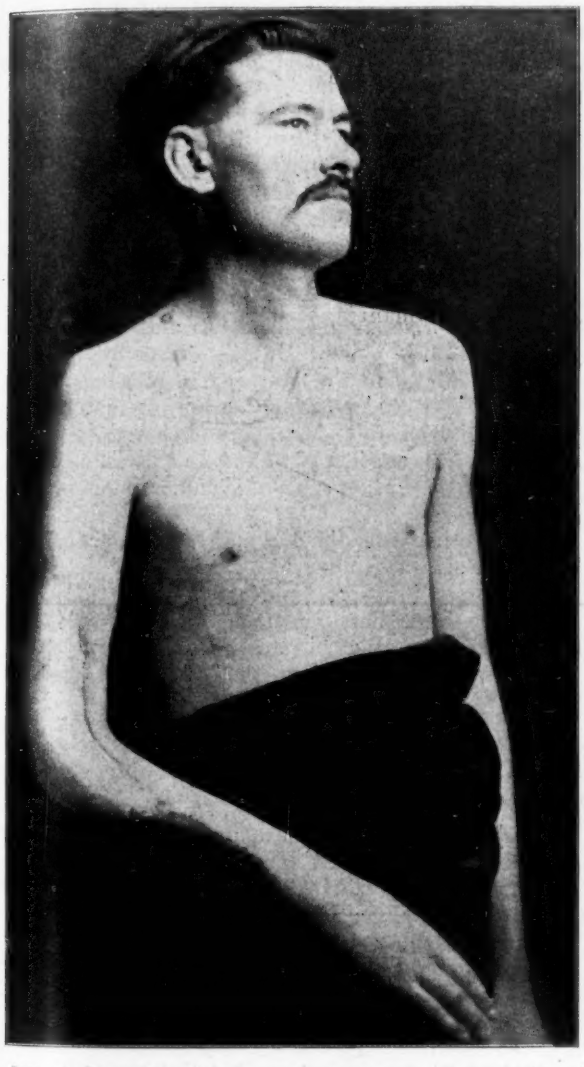
Finally, when the patient came to see me, April 19, his arm was entirely healed and presented the appearance shown in the photograph. He had lost his thumb and little finger, and the remaining digits were living, but stiff, rigid, and completely anesthetic. He has a stiff

wrist and a much reduced forearm, the ulna being wanting. Nevertheless, he has slight supination and pronation, caused by preservation of the biceps tendon, and has fairly good motion at the elbow. The skin is devoid of sensation up to the elbow.

## SUMMARY.

In closing the description of the case we would call attention to the following points:

1. The lesion caused by the bullet was a true aneurysmal varix of the middle third of the subclavian artery and vein just where the vessels are separated by the musculo-aponeurotic partition formed by the scalenus anticus.



Case of **Morse M.—Arterio-venous aneurysm of the right subclavian vessels; from photograph taken after complete healing of the wound and sloughed surfaces had taken place. The deformity resulting from sloughing of the forearm and hand is shown on the arm (right) paralyzed by the injury.**

2. A continuous direct channel had formed between the artery and vein through the small perforation in the muscle.

3. The early establishment of a communication between the artery and the vein was favored in this case by the primary hemorrhage, which immediately filled up the rigid and unyielding space between the scalenes and forced the artery against the posterior surface of the muscle, thus compelling the stream of blood to escape through the small perforation made by the bullet, and directing it in the line of least resistance—*i. e.*, toward the opening in the vein, which was held against the anterior surface of the muscle by the clot which accumulated in the space bounded by the scalene, clavicle, and deep cervical fascia.

4. The stream of arterial blood in the subclavian artery had been almost completely short-circuited and was poured into the proximal or cardiac side of the subclavian vein, which was enormously distended thereby, the circulation of the upper extremity being kept up chiefly by the collateral circulation.

5. A simultaneous contusion and injury of the brachial plexus existed, which led to a paralysis of sensation and motion, which was intensified by arterial ischemia of the arm.

6. The dissection and elevation of an osteoplastic flap, including the inner two-thirds of the clavicle, was most advantageous in securing a free access to the injured parts.

7. The innominate artery was missing, and in its place an anomalous subclavian, originating from the arch of the aorta, existed; the corresponding common carotid, originating in the arch on the left side of the trachea, did not reach the surface until it had ascended to the lower level of the thyroid gland.

8. The provisional loop of silk applied around the origin of the subclavian to secure prophylactic hemostasis in the field of operation, failed to control the bleeding from the proximal side of the arterio-venous orifice when the vein was detached.

9. Bleeding from the subclavian at the aneurysmal orifice was only controlled after the artery had been secured by a double ligature applied on each side of the bleeding-point—*i. e.*, on the inner and outer side of the anterior scalene.

10. In future operations in similar conditions the only means of securing absolute prophylactic hemostasis, that is, on the arterial side, would be to resort to digital compression over the subclavian artery at the origin of the vertebral—just below the tubercle of the fifth cervical vertebra—in addition to the traction loop of silk applied around the innominate. The application of a traction loop on the first portion of the subclavian on the outer, or axillary, side of the origin of the vertebral is a procedure beset with many difficulties, because of the numerous enlarged and adherent veins which are matted together in a mass of exudates and which would flood the field at the least provocation. Digital compression of the vertebral could be readily and effectively applied, while the innominate, which as a rule is quite accessible, would be compressed by the traction loop.

11. It is possible, as shown by this case, to restore the continuity of the subclavian vein by lateral suture after detaching it from the aneurysmal orifice.

12. The possibility of mortification of the peripheral part of the extremity must not be overlooked in considering the prognosis and post-operative results.

13. This ischemic necrosis of the extremities is more liable to occur when the subclavian is subjected to torsion in its second division, thus probably obliterating or injurying the orifices of the thyroid axis, vertebral and other branches.

14. The partial mortification of the hand and forearm in this case, while traceable directly to the arterial ischemia, was probably favored by the defective innervation of the parts from injury to the brachial plexus.

15. A notable feature of the sphacelation was that it especially involved large muscular groups rather than the overlying skin, thus confirming the observations of

Lesser, Volkmann, Ludwig, Bernays and others on the degenerating and necrobiotic effect of arterial ischemia upon muscular tissue.

16. The advantages of massive infiltration with very dilute eucain and cocain solutions were well shown in this case, as they economized the use of the general anesthetic and permitted not only the painless resection of the clavicle, but also facilitated the exploration of the deep cervical blood vessels, while applying a traction loop of silk around the anomalous subclavian at its origin.

17. When a general anesthetic becomes necessary, chloroform, preceded by morphin, is, in these cases, better than ether, because it is not accompanied by as much respiratory disturbance and overdistension of the veins.

18. The experience of the author in this case confirms his previous observations and those of others—Cushing, Lilienthal, Jaboulay, etc.—to the effect that the preliminary administration of morphin, followed by local infiltration, apparently predisposes to the favorable and economical administration of chloroform, which, in this case, was never pushed to absolute unconsciousness.

### HISTORICAL DATA.

The history of arterio-venous aneurysm clinically begins with the first accurately recorded case, described by William Hunter in 1757, and anatomically by the description of Delacombe in 1761, which was based on the postmortem study of a lesion implicating the femoral vessels—Broca. The first accurate account of arterio-venous aneurysm of the subclavian vessels dates back to the classic case of the Sargent Pierre Cadrieux, whose injury was treated by the distinguished Dominique J. Larrey in 1829, and made memorable by his admirable description of this condition.[3]

From 1829 to the present time we have been able to gather the records of 15 cases of arterio-venous aneurysm, including our present observation. The recorded traumatisms of the subclavian vessels are rare, not only because these vessels are well protected by the clavicle, and are not so much exposed to injury as those of the extremities, but chiefly because accidental injury to these vessels is so liable to a promptly fatal termination from associated complications, and the profuse primary hemorrhage and shock, that the patients do not survive long enough to be subjected to any form of surgical treatment. Nevertheless, in 1877, Von Bergmann was able to collect 90 recorded instances of gunshot and stab injuries of the subclavian vessels. Rötter, of Berlin, as near to us as 1893, was able to collect only 14 cases of stab wounds of the subclavian vessels; and Souchon, in his remarkable essay on the surgery of the subclavian artery, published in 1895, was able to collect only 14 cases of arterial traumatic aneurysms, all involving the third division of the right subclavian.

Our collection of 15 cases of arterio-venous aneurysms, gathered from all sources in the literature, are all traumatic, and include injuries to the vessels on either side, irrespective of the topographical division of the artery involved, though, in a large majority of these, the precise point of injury could not be accurately ascertained.

The cases are reported in chronologic order by the following observers: 1, D. J. Larrey, Paris, 1829; 2, Sanson, quoted by Robert, Paris, 1832; 3, Bérard, quoted by Richet, Paris, 1842; 4, Wattmann, Vienna, 1843; 5, Wederstrandt, New Orleans, 1854; 6, R. W. Smith, Dublin, 1860; 7, Fischer, Göttingen, 1861; 8, Letenneur, Nantes, 1861; 9, Will (J. C. Ogilvie), Glasgow, 1875; 10, B. Kirsch, Breslau, 1875; 11, A. P. Arango, Medellin, Spain, 1880; 12, J. V. Rötter, Berlin, 1893; 13, G. Wedekind, Berlin, 1893; 14, Veiel, Cannstadt; 15, Matas, New Orleans, 1900.[4]

The reports of these cases, together with the comments of the authors and the important discussions which followed the presentation of several of these to various medical societies, furnish the available data upon which the special history of this rare, interesting, and serious lesion is based.

### ANALYSIS OF CASES.

An analysis of these 15 cases furnishes the following points of interest: 1. Nine were caused by stab or penetrating cut wounds; 6 by bullets. 2. All the patients were men. 3. The injuries were almost all inflicted upon comparatively young subjects. Of the 9, whose ages are distinctly specified, the oldest was 32 years of age at time of injury; the youngest 15 years. In 6 cases the ages are not specifically stated, but the evidence would point to the fact that none had exceeded the middle period of life. 4. In 6 cases the vessels on the left side were injured; in 7, those on the right; in 2, the side injured is not stated. 5. The seat of injury was absolutely demonstrated to be in the subclavian vessels in 7—Wattmann's, Wederstrandt's, Will's, Rötter's, Wedekind's, Veiel's, Matas'—either by autopsy or operation. 6. In all the cases but 2, in which the seat of the lesion is either positively or approximately stated, the third division outside the scalenus was implicated. In Letenneur's case injury of the first division was suspected. In the author's, the second division was positively involved.

In the 8 other cases the diagnosis of injury of the subclavian vessels was confirmed by the seat of the external lesion, course of weapon, and range of the missile, the tumor, the immediate effect upon the circulation of the arm, and the other physical signs, showing that the subclavian trunks, and not their branches, had been injured.

In 5 of the 15 cases the brachial plexus was coincidently and partially injured; positively in 3—Larrey's, Wederstrandt's, Matas'; probably in Letenneur's and Kirsch's cases. In several cases, in which reference to the condition of the arm is made, the disability of the arm was pronounced, but was either due to primary or secondary vascular disturbances—Wattmann (secondary), Smith, Arango, Wedekind, Veiel.

Primary circulatory or neural disturbances may have existed in other cases, but this can not be stated from the published reports.

The *time* after the injury, when the first sign of arterio-venous aneurysm was first recognized, is stated in 8 out of the 11 unoperated cases; in 3 it is only approximated; in 1 the characteristic thrill and murmur were apparently altogether missing—Will's case; in 3 no information on this point can be obtained. In 1—Matas'—the signs of arterio-venous communication were established within four hours after the injury; in 3 cases they were present on the second day—Larrey, Wederstrandt (?), Rötter; in 3 the diagnosis was made on the third day—Letenneur, Kirsch (?), Wedekind; in 1 on the sixth day—Fischer (?); in one on the eighth day—Arango; in one on the ninth day—Veiel; in 1 "a few days later," after the injury—Bérard's case.

3. Cliniques Chirurgicales, Paris, 1829, vol. iii, p. 115.

4. To these fifteen cases two more should be added, viz., Reboul's, Montpellier, 1894, fatal, not operated; Vallas', Lyons, 1900, fatal, operated; both caused by indirect fracture of the clavicle; in all, seventeen cases.

Apart from injury to the brachial plexus and purely vascular disturbances in the arms, complications are noted in Wattmann's case—secondary phlegmonous inflammations of arm; in Will's—septic hemopyothorax; in Wedekind's—septic phlebitis and pneumonia. In only 3 of the 15 cases did secondary hemorrhage follow after the primary injury, and these were all stab wounds—Will, Rötter, Veiel.

Of the 15 cases 11 were treated expectantly, and of these 1 died from secondary hemorrhage and septic complications three weeks after the injury, and after the external wound had healed—Will's case. The remaining 10 all survived the immediate effects of the injury, their wounds healing after the cessation of the primary hemorrhage.

Only 4 out of the 15 cases were operated upon; in 3 of these—Rötter, Veiel, Matas—within twelve days after the injury, and all recovered; in 1—Wattmann's case—thirty-two years after the primary injury, when the ligation of the subclavian was necessitated by urgent aneurysmal complications, and this was the only fatal case. The total mortality of the entire group is, therefore, 13 1/3 per cent.[5]

An investigation of the individual records as far as they are available shows the following results as regards the final outcome of this injury on the vessels and upon the affected arm:

1. In Larrey's case—saber cut—four years after the injury there was marked diminution in the aneurysmal signs, but the arm was disabled completely by paralysis, contracture of fingers and hand, the pulse in the brachial and radial vessels suppressed, and the circulation in the superficial veins obliterated.

2. Sanson's patient—gunshot—quoted by Robert, was living ten or more years after the injury, but still annoyed by a loud, purring murmur (ronflement) and other active signs of aneurysm, which could be heard at a distance, and for which he consulted Sanson.

3. Bérard's case, quoted by Richet—stab—left the hospital "several weeks" after the wound had healed, but complaining of the annoyance caused by the disturbing noises in the aneurysm. These seemed to exasperate him, and he clamored for an operation, which neither Bérard nor Dieffenbach would perform.

4. Letenneur's patient—small pistol shot—healed, with persistence of all the aneurysmal signs, but felt well and was able to take his first promenade twenty-one days after the injury, after which no further observations are recorded.

5. Wederstrandt's patient—shot—recovered from his injury, and died at the Charity Hospital seven years after, from diarrhea. He had marked aneurysmal symptoms, with paralysis and atrophic changes in the arm, up to the time of his death, and at the autopsy a well-marked varicose aneurysm between the subclavian artery and vein was found.

6. Fischer's case—stab—recovered from the injury, with persistent signs of aneurysm, but was living one year after the injury, after which he passed out of observation.

7. Kirsch's patient—shot—recovered from the immediate effects of the injury, remained under observation two and one-half months, but was not improved, and was discharged with active aneurysmal signs. He suffered also from persistent disturbances in the circulation, and innervation of arm and hand; he had difficulty in moving his fingers.

8. Smith's patient—stab—recovered from the immediate effects of the injury, the wound healing in three weeks. Signs of varicose aneurysm existed seven months after the injury, with disturbances in the circulation of the arm under certain conditions. Eight months (?) after the injury he was compelled to return to the infirmary, with signs of obstruction in the circulation of the arm. The arm on the affected side had suddenly become cold and edematous, and in a few days gangrene of the ring and little finger, with part of the forearm and hand, had set in. He gradually recovered from the sloughing without serious constitutional disturbance. The radial pulse, which had ceased to beat from the time of the injury, now, strange to say, returned, when gangrene was established. The aneurysmal signs still persisted actively when discharged.

9. Arango's patient recovered from the immediate effects of the injury, which was accompanied by marked circulatory disturbances in the arm, but no sloughing. He was so much disturbed by the noises in the aneurysm that he had to be carried to the vicinity of a torrent in order to drown the sounds and thus secure sleep. This intense disturbance subsided in forty days. Two months afterward the aneurysmal signs continued, though much diminished. Ten years later, the patient's friends reported him "feeling perfectly well."

10. Will's patient—stab wound of subclavian vessels complicated by perforation of pleura—was stabbed on May 7, 1875; left hospital May 19, had first secondary bleeding while traveling; May 25, last and fatal hemorrhage. Patient expired as the operator had begun an incision to expose the bleeding vessel.

11. Wedekind's patient—stab—recovered from the immediate effects of the injury and was in excellent general condition seven months after, but the aneurysmal signs remained unabated, and he suffered, under special conditions, from transitory disturbances in the sensibility of the arm and hand, caused apparently by interference with circulation.

Under the category of unoperated cases we could also properly include Wattmann's case. This case is most interesting as showing that even after a latent period of thirty-one years, in which the patient was apparently well, the lesion finally became active and gave rise to fatal complications.

Thus we find that in 11 out of 12 cases which were treated primarily by the expectant plan, 11 recovered from the immediate effects of the injury, and their wounds healed without secondary hemorrhage, except one—Will's case—by simple measures of compression with bandages, rest, etc. But it is to be noticed, also, that only in one or possibly two—Larrey and Arango—was there reason to believe that the lesion had been cured. In all, the signs of arterio-venous aneurysm remained active, and in several the murmurs and sounds, after many years, were so annoying that the patients applied for relief on this account. In one case it was more than ten years after the injury—Sanson's case. In six cases—Larrey, Kirsch, Wederstrandt, Smith, Fischer, Wedekind—permanent circulatory and trophic disturbances persisted in the arm, not only from associate injury to brachial plexus, but from interference with circulation; in one—Smith' case— gangrene set in, with loss of part of the extremity (fingers, hand and forearm), more than seven months after the patient had recovered from the injury. In the other unoper-

5 If we add the two fatal cases of Reboul and Vallas, reported since the above was written, the mortality is increased to 4:17, or 23 $^{9}/_{17}$ per cent.

ated cases, with the exception of three (Wattmann's succumbed thirty-two years afterwards, after thirty years of latency; Will's died from secondary hemorrhage three weeks after the injury, and Smith's from gangrene of extremity seven months after), it is only fair to state that the abnormal conditions of the circulation created by this lesion were, with the exception of the annoyances and disturbances previously referred to, fairly well tolerated, and were not incompatible with a long survival and active life. It is well to note, however, that in at least six of these cases the patients were last seen or passed out of the observation of the surgeons who reported them, within a few weeks or months after the injury, while the lesion was still active, and too soon to permit any definite conclusions as to the final outcome of the injury—Bérard, a few weeks; Smith, seven or eight months; Fischer, one year; Letenneur, twenty-one days; Kirsch, two and one-half months; Wedekind, seven months.

### THE CASES OPERATED ON AND RESULTS.

In 4 only of the 15 cases was an operation resorted to; in 3 cases ligation of the vessel was made imperative by the occurrence of violent secondary hemorrhage following shortly after the injury, and in only 1—my own—was the operation deliberately performed in anticipation of future complications. Three out of these 4 cases permanently recovered except Wattmann's patient, operated in 1840, who died of secondary hemorrhage twenty-three days and thirteen hours after the ligation of the third portion of the subclavian. This case, which is often referred to as a case of traumatic aneurysm of the subclavian artery at its junction with the axillary, is especially interesting to us in this connection, because it illustrates the possible transformation of a passive and benign arterial varix into a rapidly growing and malignant aneurysm of the artery after a long lapse of time. In this case, a gunshot injury was inflicted in 1809 from which the patient recovered without any great disturbance except cramps in the arm. From 1809 to 1840, thirty-one years, during which the patient was engaged in active military service, he suffered no serious inconvenience. In 1840 an aneurysmal tumor was developed for the first time under the clavicle. This, however, did not enlarge for two years. In 1842 erysipelas and phlebitis set in, and the tumor rapidly grew to threatening proportions. Under these conditions, Wattmann found it necessary to operate. Two ligatures were applied between the scaleni and the tumor, none to the vein; secondary hemorrhage occurred at the point of ligature, which caused the death of the patient. A large varicose sac was found at the postmortem, which communicated with both the artery and vein.

In Rötter's case, in 1892, the signs of arterio-venous aneurysm developed almost immediately after a stab injury; profuse primary bleeding followed. Rötter advised immediate operation, but the patient would not consent until after a nearly fatal secondary hemorrhage occurred on the ninth day at midnight, when Rötter cut down upon the vessels and ligated them outside of the scalenus after resecting the clavicle. The knife had penetrated one inch below the middle of the left clavicle, causing a sharp-edged oblique wound, two-thirds of an inch long. After resecting the clavicle and displacing it upward, he was able, by following the track of the wound, to insinuate his fingers behind both vessels as they emerged on the outer side of the scalenus, and by hooking his fingers behind them and dragging them forward was able to control the bleeding until the artery and vein had been ligated above and below the point of injury. The patient, though much shocked, made a good recovery. The clavicle was sutured back into position. The arm became cadaverically pale and cold, but the circulation was finally re-established.

Veiel's case is also very interesting:

> The patient, aged 23, was stabbed in the right shoulder on May 14, 1894. Wound one-third of an inch below the middle of the clavicle. Profuse hemorrhage and syncope, when bleeding stopped spontaneously. Temperature, about 103, gradually subsiding to normal on the ninth day. Profuse secondary hemorrhage took place at midnight on the ninth or tenth day, while the patient was asleep. He had signs of arterio-venous aneurysm, which were observed for the first time on the tenth day, when septic pneumonia set in. Fearing the repetition of the hemorrhage, which would have been fatal, an operation was performed. Following the track of the wound an incision was made into a pocket situated below the clavicle, but a flood of blood followed which could only be controlled by packing the cavity. While this was being done the third division of the subclavian was exposed and ligated outside of the scalenes, but upon diminishing the pressure and removing the pack in the wound below the clavicle, bleeding followed, which was not controlled until the vein had been exposed and ligated in the sac above and below the injury. A third tributary vein, which continued to bleed freely after the main trunk had been secured, had also to be ligated. Hemoptysis and pyemic pneumonia, with temperature of 104, threatened the life of the patient for several days. Fever ceased only on the twenty-fifth day after the injury, and only after a large phlebitic phlegmon of the arm on the affected side had been opened and a septic venous clot removed. The wound had healed and the patient was discharged two and a half months after the operation in a very satisfactory general condition. The circulation in the arm and its nutrition were affected permanently and very seriously. Eight and a half months after the operation, anesthesia and trophic changes, with a loss of thermic sense, existed, leaving the arm in a state of functional disability.

These four operated cases (including my own fully reported in the first section of this paper) resulted in three recoveries, the only death—Wattmann's—being due to secondary hemorrhage following a ligature applied under very disadvantageous conditions and with the old septic technique. In 2 out of the 3 cured cases serious functional disability followed after the intervention, though in my case, in which partial gangrene of the hand and forearm occurred after operation, there was a coincident paralysis of the arm from injury to the brachial plexus.

### EFFECTS OF THE ARTERIO-VENOUS LESION OF THE SUBCLAVIAN VESSELS UPON THE CIRCULATION OF THE UPPER LIMB.

The effect of accidental and surgical occlusion of the subclavian vessels upon the circulation of the arm is the cause of much concern in these cases. In analyzing the individual reports of these fifteen arterio-venous injuries or aneurysms we are impressed by the fact that in a large majority the effects of the arterial ischemia and coincident venous obstruction were immediately perceived. Suppression of the brachial and radial pulse are noted in the majority of the cases of which full observations have been recorded; in many, great pallor, lividity of the skin, ecchymoses, coldness of the surface, functional disability, numbness, paresthesia, edema, etc., are recorded as the immediate effects of the injury. In two, extensive interference; in one of these spontaneously—Smith's case; in the other, after the ligation of the artery and lateral suture of the vein—Matas. That the danger of sloughing is not to be lightly considered is well shown in my case, in which, after the ligature of the second division of the artery, followed by torsion of

the proximal end—following Wyeth's suggestion—and after simple lateral suture of the vein purposely done, so as not to interrupt the venous current, complete arterial ischemia followed, causing an extensive dry sphacelation of the several fingers, part of the hand, and forearm. That this was due to complete interference with the arterial and not the venous supply of the limb is proven by the character of the gangrene—dry—and pallor of the skin. This result is important because the ligation was performed with the most aseptic technique and with absorbable kangaroo ligatures, and the wound healed *per primam*. The complete ischemia of the arm can only be accounted for by the torsion which was applied to the proximal end before ligation, which no doubt interfered with the collateral supply from the branches of the thyroid axis, superior intercostal, and possibly the internal mammary. This extra precaution, which was calculated to diminish the risk of secondary hemorrhage, should be avoided, if possible, in future operations.

We have already referred to the tropho-paralytic phenomena which in some cases permanently impaired the usefulness of the arm as a result of circulatory disturbances independently of injury to the brachial plexus—Veiel's case is probably the most notable in this respect. That the danger of sloughing is greater in double—arterio-venous—injuries than after interference with arterial circulation alone is well shown by the comparative statistics of the two classes of injuries. Le Fort, in his learned and careful study of 223 ligations of the subclavian artery for all causes (published in 1867), was able to find only 4 cases in which gangrene occurred, and this was limited chiefly to the fingers—1.7 per cent. These are the cases reported by O'Reilly, White, Blizzard, Terrier, the last complicated by injury to the brachial plexus. Von Bergmann, in 1877, in studying the effects of injury to the subclavian from the same point of view, states that in 90 cases of ligation of the subclavian, gangrene of the fingers occurred in 3 cases—3 1-3 per cent.—and in these this result was attributable largely to the extensive contusion of the skeleton and soft parts about the shoulder girdle. In this respect the risk of gangrene can not compare with the greater frequency of this result in similar ligations of the vessels at the groin.

It is also well established that gangrene is much less frequent after ligations of the third division of the subclavian above the clavicle than after the ligation of the axillary when this is done in the wound.

For instance, Le Fort (*loc. cit.*), in a study of 42 cases of axillary aneurysms, notes 5 cases in which gangrene occurred as a direct result of the traumatism without ligation, and in 6 in which the gangrene followed the ligature applied in the wound at the time of injury.

The gravity of the double—arterio-venous—injuries of the subclavian vessels from this point of view will now be appreciated, when we recall the facts gathered from our statistics that 1 in 11 unoperated cases sloughed—9 + per cent.—and that in 1 of the 4 operated cases this unfortunate result followed—25 per cent.

The extent of the traumatism in the operated cases was, it must be remembered, greater than in the non-operated, since the operation in 3 of the 4 was necessitated by secondary hemorrhage or other grave complicating lesion, whereas secondary hemorrhage occurred in only 1 of the 11 unoperated cases.

To summarize the liability to gangrene of the limb, grossly stated and without reference to special modifying conditions, it would be as follows for the various lesions: Arterio-venous injuries of both the subclavian artery and vein, including ligations, 13.5 per cent.; after ligature of subclavian artery—third division—1.7 per cent. (Le Fort); or 3 1/3 per cent. (von Bergmann); after obliterative injuries of the axillary, 26.8 per cent. This last percentage relates, however, to cases reported before 1867, and would no doubt be much improved by later statistics; the contrast between the axillary and subclavian injuries is, nevertheless, significant.

*(To be continued.)*

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## REPORT OF A DEATH FROM CHLOROFORM ANESTHESIA,

### BEING THE FIRST IN A PRACTICE OF SIXTEEN YEARS, AND INCLUDING NOT LESS THAN TWO THOUSAND CHLOROFORM ANESTHESIAS.

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CHICAGO.

It is my unpleasant duty to report the first death from chloroform in my practice, not a very large one to be sure, which began in the Cook County Hospital in 1885. I have not kept a record of the number of anesthetics given for me, but they have certainly not been less than two hundred a year. Chloroform has been uniformly used. Only when a patient insisted on ether has anything but chloroform been given.

It has been my practice to have a skilful person administer the chloroform, even if it necessitated an untried and even inexperienced physician as my first assistant. My anesthetizers have been trained by me to give chloroform on two thicknesses of cheesecloth held over the left index finger or spread on a wire mask. It is administered drop by drop from an ounce bottle with a little notch cut out of the side of the cork. The anesthetizing room is still. The patient is directed to count after the anesthetizer at each full inspiration. Thus confidence and regular breathing and possibly a sort of hypnotic state is secured. This method has been once fully described by Dr. D. H. Galloway.[1] There is rarely any difficulty and almost never any kicking or rolling about on the table. Very rarely has artificial respiration been necessary.

In the case which I am about to report, the anesthetic was given by a physician with whom I had no previous experience and in a hospital where I have not been accustomed to operate. There was no oxygen at hand. My attention was given entirely to the operation. I had no reason to anticipate trouble.

Mrs. McC. was brought to my office for examination on September 28 by Dr. W. M. Watermann. She had all the appearances, on walking into the consultation room, of being 38 years of age and about four and a half months pregnant. I made an examination of her without getting her history. She was medium-sized, well built. The temperature was normal and the pulse 88. She showed evidence of previous pregnancies. The breasts were flabby; there was no marked pigmentation, no blue veins over the breasts. The vagina showed no enlarged veins. The cervix uteri was small, in the median line, hard and high up. It pointed slightly toward the right. The cervix did not seem to move with the abdominal tumor. The tumor had the size, shape and consistency of a pregnant uterus of four and a half

1. JOURNAL A. M. A., May 14, 1898.

or five months. There was one point which seemed to sugesst a fetal extremity. This was very absorbing and riveted our attention. No heart sounds could be heard; no distinct placental souffle; no fetal movements felt. The tumor was fixed in the pelvis, did not rotate, and when standing, sitting or reclining had all the appearances of pregnancy.

The patient gave a history of repeated attacks of appendicitis. She insisted that she was not pregnant. She had borne two children, the youngest 2 years old. Five months ago, after a light attack of appendicitis, she noticed a slow, progressive growth of the abdomen. She had menstruated regularly since the last child was born in spite of nursing her. She had none of the subjective symptoms of pregnancy during the time the abdomen was enlarging, which symptoms were very pronounced in her previous pregnancies. Two weeks before she saw me she had an attack of abdominal pain. It was not like her previous attacks of appendicitis, but was deep, long, lasting and accompanied by faintness.

The diagnosis did not seem to us very clear. In spite of the absence of mammary and vaginal signs of pregnancy and the small, hard cervix uteri, and in spite of the absence of all subjective symptoms and the history of continuous menstruation, great importance was given the regular and timely growth of a tumor which was shaped like a uterus and had a feeling like that of an included fetus. It seemed that so regular and timely a tumor must be pregnancy. With the abnormal findings at the cervix we thought of extra-uterine pregnancy. The patient was warned of the possibility of some other form of tumor and urged to have constant medical supervision and a subsequent examination.

On the afternoon of Wednesday, October 2, Dr. Meany, who had the care of the case in the absence of Dr. Watermann, called me up on the telephone and told me our patient had been having more pain, the attacks being very severe. They were still unlike the attacks of appendicitis. She required morphin on Saturday and Monday nights. Her pulse had gone up suddenly to 108, and her temperature was 100.4. She was very sick. I decided to see her at once with Dr. Meany.

At 4 p. m. I was at her home. She was lying on her left side and appeared very sick and pale. She had been vomiting bilious matter for some hours. Her pulse was 120. The abdominal tumor was as large as that of a pregnancy at full term. It was, however, soft and cyst-like. The cervix was still small and hard and the fundus could not be reached. The breasts did not look like those of a pregnant woman. The vagina had no blue veins or other evidence of pregnancy. No fetal heart-beat could be heard.

With presumptive diagnosis of, 1, extra-uterine pregnancy and hemorrhage; 2, tumor arising from the pelvis with twisted pedicle, or 3, pregnancy with some complicating intra-uterine hemorrhage, an operation was proposed and undertaken at the Garfield Park Sanitarium, Dr. J. J. Meany, Dr. Rudolf F. Teschan and Dr. H. J. Stewart assisting. Several other physicians and students were present.

The patient was anesthetized with chloroform in her room and brought to the operating room. She was well scrubbed. She was not profoundly under chloroform during these preparations. The chloroform was pushed and the operation begun. Through a rather large (3-inch) median incision the abdomen was opened. The smooth, black surface of a multiocular cyst of the left ovary presented itself. There were no adhesions to be felt. The trocar quickly emptied the cysts and the tumor was removed. The pedicle was found twisted three times around. It was ligated in two places. The appendix was found very much enlarged, 4 inches long and quite angry looking. It was removed. At no time during the operation was there any anxiety about the patient. No stimulants were used and there was no delay from imperfect anesthesia. The operation had taken less than twenty minutes. On account of the small amount of fluid in the peritoneal cavity, and on account of the slight contamination of the wound edges with the cyst contents, the abdomen was now washed out with warm normal salt solution. This much revived the patient and she resisted and threw her body and legs about. This led the anesthetizer to administer more chloroform and she became quiet again. Suddenly it was noticed that she had stopped breathing. I left the care of the abdomen to an assistant and immediately opened the mouth, drew out the tongue and compressed the root of the tongue forward. The assistants elevated the foot of the table and Dr. Stewart very skilfully performed artificial respiration. This resuscitation was very tardily begun; the heart was beating and the blood became aerated. After washing up and putting on the gloves I closed the abdomen. Artificial respiration was continued. There seemed to be occasional efforts at automatic respirations, but it was necessary to keep up the mechanical breathing. Dressings were applied and the patient removed to her room, placed crosswise of the bed on a stretcher and artificial respiration kept up. Although in better position for this procedure it became less and less effective. She became cyanotic, the heart stopped and she died more than an hour after the first recognition of danger. There was no postmortem.

In considering this case there is only one thing which gives me any comfort. The anesthetizer was a stranger to me and untried. We had never worked together before. The patient had taken the anesthetic well and the operation had been without the slightest incident. The use of the hot normal salt aroused the patient; the anesthetizer gave more chloroform and the patient stopped breathing. For an unknown period no efforts were made to open the pharynx and produce artificial respiration. Some valuable time was lost. The heart continued to beat for three-quarters of an hour after all automatic respiration was suspended. The aeration of the blood was for a long time quite perfect, as shown by the red lips and disappearance of all signs of cyanosis. There is no evidence that the patient died of thrombosis, enzyme poisoning or any other effect of the simple and rapid operation.

When a patient dies of chloroform it is always recognized and properly credited. It seems in every case I have known to have been due to unskilful administration or improper surroundings. When a patient dies of ether narcosis it may be on the table, but it is usually after several days, and it therefore lacks the tragic element so confounding and even terrifying in deaths from chloroform. Too little care and attention is given the anesthetic. A person who gives ether is unfitted to give chloroform. I have extravagantly suggested that when a physician has once given ether he should be tattooed on the hand and never allowed to give chloroform afterward.

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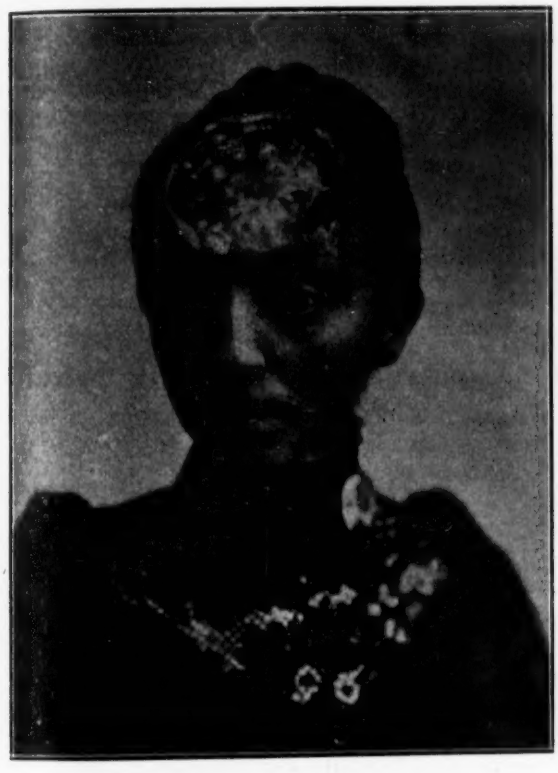
**Il Lavoro.**—Professor Devoto, of Pavia, Italy, has undertaken the publication of a periodical with this title. It is to be devoted to all questions of a medical and hygienic nature related to the professions and trades, manufactures, etc.

## Clinical Report.

### CASE OF NECROSIS OF BONES OF THE SKULL.*

W. U. COLE, M.D.
COLUMBUS, OHIO.

The patient is a housewife, aged 34, is a native of Ohio, and is married, but has no children. Seven years ago she came to my office for the first time, suffering from headache and pain in the left hip. She presented a sallow, anemic appearance, and was somewhat emaciated. I also noticed that the anterior and upper frontal regions were unduly prominent, but the skin showed no discoloration. Six months later she called again. Apparently an abscess had formed at the apex of the prominence to the left of the median line, where she complained of severe throbbing pain. The skin over the site of the abscess was a dark-red color, and at one point some signs of ulceration were already visible. I evacuated the abscess under anesthesia. A cheesy tuberculous deposit filled the cavity. At



its base I noticed a roughened condition of the bone, and found that some small portions of bone could be easily detached with a gouge, which revealed a cavity in the bone extending through the outer table to the diploë.

There was a continuous discharge of greenish pus from the wound for some weeks, and a persistent small sinus. Finally, the wound almost healed, and I lost sight of the patient for some time.

A few months later she called me to her residence, and I found, on examination, that the necrosis had so extended that it now occupied the entire anterior portion of the frontal bone and the diameters of the lesion were about two inches from above downward, and two and one-half inches from side to side. I advised the removal of the necrosed bone, and requested the patient to go to a hospital. Under strict antisepsis, I removed the entire outer table over the necrotic portion. The inner table, though showing no appreciable signs of necrosis, was apparently unnatural in its consistency, somewhat thickened at points, spongy in appearance, and showed other signs of disease. The wound was thoroughly washed with formalin solution and packed with iodoform gauze. The patient remained in the hospital for two weeks, and the edges of the wound by this time showed signs of the formation of healthy granulations. The wound seemed to make fair progress toward healing for some months. The patient, having learned to dress the wound herself, passed for a time from my notice.

After several months had elapsed, I was called to her residence, and this time found her confined to bed. She complained of severe pain and stiffness of the left hip. The hip was swollen and very tender to the touch. Prior to this time, at each visit, she had complained of pain in the left hip, and occasionally was forced to limp when walking. By this time the patient's weight had decreased very perceptibly. Her temperature was 103.7 F., and her circulation feeble. She was so weak that it was difficult for her to answer questions. On examination of the wound of the forehead, I found that an area of the inner table of the skull was necrosed, and that the visible necrosed portion measured two and one-half inches in both diameters. This area was entirely denuded of flesh, was of dark color, and covered with a purulent discharge. There were numerous openings through the bone into the cranial

cavity, from which at each pulsation offensive fluid would exude. She presented the signs of pyemia.

After watching her case for several days, attempting to improve her general condition, and finding little, if any, improvement, I advised the removal of the diseased portion of the inner table. She readily consented to the operation, and on Sept. 11, 1897, with the help of competent assistants, I removed the inner table of the skull to the extent that is perceptible at this time. The operation was performed by the assistance of the Hopkins bonecutting forceps, and after the membrane was wholly relieved of its bony covering I smoothed the edges of the bony circle with a chisel and mallet. After thoroughly cleansing the area of the exposed membrane and the margins of the wound, I covered the exposed surface with iodoform gauze, applied sterilized absorbent cotton, and a bandage for retention of the dressings. The after-treatment consisted in washing the wound twice daily and keeping the denuded membrane thoroughly clean by pouring over the entire surface an antiseptic solution. It was not long before granulations were manifest at points on the margin of the wound. Soon these spots coalesced, showing a healthy granular sur-

* Presented to the Columbus Academy of Medicine.

face, and after a considerable length of time the wound became covered with a thin, but fairly firm, epithelial layer, with occasional ulcerative patches.

The flattened condition of the forehead indicates the interference with the bone above described, and there are but a few small fragments of the frontal bone remaining. At each pulsation of the heart the contents of the cranial cavity expanding keeps up a constant motion of the covering of the area that is deprived of bone. The patient has gained in bodily weight and at present, to all appearances, has medium fair health. She is able to look after her own domestic affairs. She is possessed of all her mental faculties, shows no impairment of any of them, seldom complains of pain, and, in fact, seems to enjoy life fairly well. She takes a great deal of outdoor exercise, which has proven beneficial to her. A few days ago the patient called my attention to a swelling over the upper portion of the right parietal bone, slightly to the right of the apex of the skull. Pus has been discharging at the upper and outer angle of the wound on the right side through a sinus from the above-described lesion. I have made no opening at this point as the natural drainage seems to be sufficient for the present.

Heineke quotes a case of necrosis of the contiguous parts of the frontal and parietal bones and great wing of the sphenoid, that occurred in a patient aged 19, after typhoid fever. At the autopsy, it was found that the middle meningeal artery was blocked by a thrombus. Saviard reports a case in which the entire vault became necrosed subsequent to an injury of the head. Norris gives a case in which considerable portions of the parietal and temporal bones were lost, together with a great part of the frontal and occipital bones. The disease followed upon a fall on the head. A somewhat similar case is recorded by Drummond, where an equally extensive necrosis followed upon a scalp wound. South described the case of a woman, who, in nine years, lost the greater part of both parietals, and some parts of the temporal and occipital bones, from necrosis that was supposed to be of specific origin.

It is important to note that necrosis is not limited by sutures, and it seldom follows their course, but frequently involves the contiguous parts of two or more bones at the same time.

I have a case, a lady, aged 23 years, from whom I have removed about one-third of the outer table of the cranium. It was also necessary to remove the lower half of the right tibia on account of osteomyelitis with necrosis, apparently tubercular in origin.

In specimen 1263, in the Museum of the Royal College of Physicians and Surgeons, in London, England, necrosis of the frontal bone began in the inner table, following an abscess of the brain; the primitive cause was said to have been a blow on the head. In specimen 1290, the frontal, parietal and occipital bones were perforated; the cause was said to have been specific. In specimen 1293, the frontal and occipital bones were perforated and three-fourths of the right parietal bone was entirely obliterated. In specimen 1310, all the bones were affected with small perforations and exfoliations, except the occipital. In specimen 1334, large portions of the temporal and frontal bones of the left side were obliterated, and the entire orbit was necrosed from malignant disease. In specimen 1377, the entire cranium was affected. There were perforations of both tables with rough, serrated edges; some of the perforations overreached the diploë, and caused death due to exposure of the membrane. In specimen 1411, a large portion of the frontal and parietal bones of the right side were necrosed and exfoliated; the cause was believed to be specific. In specimen 1424, necrosis from injury, more than half of the frontal bone on the right side was necrosed; the child was 4 years old. The bone was removed six months after with apparent recovery; the patient was thrown from a horse to the pavement. In specimen 1425, the left temporal separated after necrosis; facial paralysis was subsequent and convulsions preceded death. In specimen 1430, male, age 31 years, nearly all of the left parietal bone exfoliated, following a burn; patient lived 15 years; there was a very slight formation of new bone. In specimen 1712, the skull of a child 5 years old, the frontal bone of the right side was perforated; necrosis was probably due to pressure from malignant growths; all of the right orbit was obliterated except the roof; portions of the right malar and superior maxillary were also necrosed; the necrosis was said to have begun in the antrum.

I would conclude that, from observations of the above-named cases and specimens, any of the bones of the skull are liable to necrose, following traumatism or disease.

I would note further that the process of necrosis may originate in either table of the skull, but the outer table is usually attacked first; in this class of cases, as well as those that begin in the inner table, the disease may or may not extend beyond the diploë. It is also worthy of note that, in all of the above-mentioned cases or specimens, the orbits and petrous portions of the temporal bones were unaffected, except the orbits were affected in the two specimens in which the cause was malignant disease.

As to the liability of the functions of the brain becoming impaired after perforation of both tables from necrosis, I am able to find from the statistics that the inferences to be drawn are very indefinite, but I am led to believe that mental disturbances are most common after necrosis of the mastoid process, and are not uncommon after necrosis from specific disease. I would also remark that it would be with great difficulty, if at all possible, for one to make a reasonable approximation of the time that a patient may live after necrosis has begun or even after either large or small perforations of the skull are known to exist, and large or small areas of the meninges are exposed; as in some of the apparently insignificant cases, death may result promptly from exposure of the membrane, meningitis, or pyemia. Again, it is also true that occasional cases, as the first described, may live for an indefinite period, and perhaps die from other causes, with nearly all of one bone removed, and with no natural protection to the membrane from thermal changes, infection, or traumatism, except a very thin epithelial layer which forms over the denuded meninges that is easily wounded and frequently ulcerates.

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# The Organization of the Medical Profession.

## III.

### OBJECTS OF ORGANIZATION.

*(Continued from page 177.)*

*Collective Investigation.*—There is a great need of some method by which statistics concerning diseases may be collected. For instance, what are the statistics of the whole country as to deaths following operation and deaths without operation in appendicitis? The experience of 100,000 physicians would be of immense value in helping to solve this vexed question. The statistics gathered by a few individuals scattered here and there are practically valueless because they do not cover a sufficient part of the whole. What are the resuts of glycerinated lymph as compared with the results from the use of dry points? What harmful results have followed the use of the one, and what of the other? What are the facts as regards the curative qualities of diphtheritic antitoxin? What are the facts as regards the prevalence of this or of that disease, or of this or of that complication in certain ailments? There ought to be a way to get these questions answered in such a manner that there could be no possible excuse for guessing, or for depending upon any one's opinion. The scientific facts derived from a collective investigation covering the experience of a very large number of physicians would be invaluable. This has been recognized for years, and such collective work has been attempted in Europe, but with only partial success, owing to lack of proper machinery. If we had a central organization with branches extend-

ing to every village and hamlet in the country, reaching each individual physician, as we must have, we would have machinery that could be utilized for gathering such needed information. With only this hint as to the possibilities in this regard we leave the subject, but ask those interested to think over it further.

*Political Influence.*—Not the least of the objects to be gained by organization is political power. Thus far physicians have had but little political influence, for the simple reason that they have not been united. There is probably no trade, calling or profession in which the individual member wields as much influence as does the physician. No one comes closer to the people than he, and his opinions and influence carry greater weight than do those of any other individual. What is needed is a combination of this influence so that it may be effective when needed. That physicians, when united for political work, are a power, has been proved a dozen times in a dozen different states during the last three or four years. Such a combination to be effective must reach every village, or wherever there is a physician. Politicians will respect us if they know we are united. Otherwise, we shall have as little influence in the future as we have had in the past. The word "political" as used here must be taken in its better meaning.

*Enforcement of Medical Laws.*—Another need for organization is for effective work in enforcing the laws. To get results in the regulation of the practice of medicine it is necessary not only to get the requisite laws, but also to enforce them. To simply put laws on the statute books and do nothing else is only half accomplishing the good that is sought to be obtained. Axiomatic as this may be, the idea has never seemed to be appreciated by those who have been working for legislative enactments and for the regulation of the practice of medicine. Time, energy and money have been spent to get the necessary laws by committees of our state societies and by others, but with this accomplished, nothing more has been done. Laws will not enforce themselves. Of this we may rest assured. We may theorize as long as we please about its being the duty of the prosecuting attorney to attend to this matter, but the fact remains that these politically appointed or elected officers will not do their duty, except in a few instances, because a united profession does not demand it. The individual member of the profession who takes upon himself this duty will generally live to regret it. It is the duty of our state and county societies to take up this work, and until they do we need not expect the laws to be enforced. To effectively accomplish this object it will require coöperative work among the state societies as well as among county societies. It might be suggested here that, in many states at least, the fines collected from infraction of law go to the society which prosecutes and hence the expense of such work would be met by the fines.

*The Business Side.*—While the members of our profession are not supposed to be dominated by commercialism, there must be recognized the necessity for the utilitarian. High ideals, noble motives and self-sacrificing work are the characteristics of the average physician, and his everyday work is proof of this. But while there is a business side to the practice of medicine the average physician seems to be sadly lacking in business methods, although it is hard to tell why. It is quite probable, however, that it comes from mistaken ideas as to the result of application of business principles to the practice of medicine. It is not our intention here to discuss this all-important question, but only to suggest that a mutual exchange of views in regard to the business aspects of the physician's work would result in much good. A mutual understanding as to fees, collections, etc., among physicians living in a neighborhood could not but result, in many instances, in a better provided home for the doctor's family. But here let it be said that there must be no forcing in this matter, as has been attempted in a few instances by societies. If a voluntary mutual agreement can not be carried out, there must be no penalty attached for its infraction. If one man persists in placing a low price on his services, in opposition to the wish and practice of the other physicians in his neighborhood, it will not do to turn him out of the society or fine him for this. Such a one will, in time, learn that no man ever made a reputation by placing his services lower than those of his fellows, and that he who places a low estimate on his abilities will find that his patients will generally judge him by his own standard. If a physician makes it a point to court the patronage of deadbeats against the protests of his fellow-practitioners, it will not be good policy to fine or totally ostracize him. Moral suasion, backed by an intelligently organized profession, will do much good in these cases.

*Club Practice.*—This is growing in this country slowly but surely. It has become a curse to the medical profession in many parts of the old world. When it is almost too late, the profession is organizing over there to fight club practice, but it is a hard fight, because the system has become established. This same fight will have to be undertaken in this country, for club practice in its worst form is growing rapidly. Here it is not only the true club practice, but it is worse. The original idea was a banding together of the poor who could pay but little, and by this banding together were able to employ a physician and pay him a fair amount for his services. There is no objection to this. But this principle is extending now to organizations gotten up by individuals for personal profit, the object being to buy physicians' services at wholesale and sell them at retail, not to the poor and needy, but to the well-to-do and to those who are able to pay. There is only one way to meet this organized effort to degrade our profession, and that is by organized resistance. We wish we could impress on every physician the fact that this thing is surely spreading, for if it could be realized in time, it could be met. We predict that in less than five years the "battle of the clubs" will be on in this country and that it will be much more serious than that which our friends across the water are waging to-day if it is not recognized in time.

*(To be continued.)*

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**Diagnosis of Perforation of Ear Drum.**—One end of a rubber tube is placed in the ear, the other end in a glass of water. Air is then insufflated through the Eustachian tube. Bubbles appear at once in the water if the tympanum is perforated.—*Ugesk. f. Laeg.*, June, 1901.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

61 Market Street : : Chicago, Ill.

*Cable Address: "Medic, Chicago"*

*Subscription price: Five dollars per annum in advance*

SATURDAY, JANUARY 25, 1902.

## THE RESPONSIBILITY OF CZOLGOSZ.

The literature of the medico-psychologic aspects of the Czolgosz case appears likely to be somewhat voluminous. Besides the quasi-official statements of Drs. Macdonald and Spitzka, there have lately appeared other articles discussing the assassin's mental condition, taking somewhat different views, at least by implication. Talbot's article,[1] noticed in THE JOURNAL of January 4, infers that the proof of his sanity was hardly of a satisfactory and logical character, and still more recently Hughes[2] takes practically the same view. The latter regrets the precipitancy of the trial and execution, and the imperatively hasty autopsy. "Czolgosz's egotism," he says, "was unbounded and morbid. His mind was evidently weak, and he appeared as a mental tool of wrong teaching, environment and influence. Unbounded egoism, projecting self into unnatural spheres and phases of action out of normal harmony with environment, is a characteristic of insanity, and it was sufficiently prominent in the case of this murderer, to have justified more extensive inquiry into the mental makeup of this strange assassin." To the average man it makes very little difference whether this malefactor was abnormal or not; that he was sane enough for execution, will be his verdict. It is a matter, however, of some interest to psychologically minded criminologists and anthropologists, and we need not pass by the fact that some of them are not satisfied with the data obtained. It might have been better had his brain been given for fuller study, but is there a valid reason for questioning the conclusions drawn from such facts as we have? Have we good grounds for considering the act is necessarily due to the morbid egotism of a degenerate, incapable of taking normal views of the nature of his act? This seems to us the implication in Hughes' paper and the basis of his regrets that further opportunities were not given for antemortem study and postmortem pathologic examination.

The facts are these: Czolgosz was an imperfectly educated young man of non-American antecedents. His associations and training had been those of a laboring man; but he had apparently been only irregularly employed, and his physical condition was not, according to the postmortem report of Spitzka, such as would indicate recent hard labor. He had discarded all religious beliefs and had thoroughly imbibed the principles of the gospel of discontent preached by certain labor agitators and politicians of the present day. His use of an alias is also worthy of note. He attended anarchistic meetings, and claimed to be a disciple of Emma Goldman. All this is consistent with a certain sort of sanity and full responsibility, unless we believe in an organized and intelligent criminal lunacy with its ramifications throughout the civilized world. Physically he was normally developed, and appears to have had no more than usual of the ordinary stigmata of degeneracy; his brain, aside from a possibly exceptional symmetry, was macroscopically that of an average individual. The abnormal egotism claimed is not apparent to us in his history or conduct after his crime; these seem rather to be perfectly consistent with the presumption that he acted solely as an anarchist of the extreme modern type, whether as an appointed agent or independently. Indeed, from all the circumstances, from his lack of ostensible means of support and his mysterious journeys to Cleveland and Chicago, it seems to us that he was entirely alone in the planning of his crime is the less probable supposition. His disclaimer of accomplices and the manner in which he met his fate are perfectly consistent with this theory. Nor would the fact that he had no formal support make any essential difference; his act and conduct were consistent with his professed principles, and while it might be pleasanter to believe that such a crime as his could be committed only by a lunatic, reason and history prove the contrary. In this case there were none of the definite marks of degeneracy, nor is there in the crime anything that is psychologically inconsistent with the possibilities of a mediocre but not abnormal mental organization under certain vicious conditions of environment.

We need not admit any genuine altruistic element in Czolgosz's motive; the altruism of the murderous anarchist is that of the French Reign of Terror or the Paris Commune—a bloodthirsty working-out of the evil passions of hate and envy. It is the stirring up and sowing of these that is the trade of the modern agitators, and they find in such as Czolgosz a fruitful soil for the seed. Traditions of tyranny and disappointed expectations of wealth and license make many of the ignorant foreigners of certain races in this country ready disciples of anarchy. Collectively they are a social problem, but their individual psychologic interest must depend not so much on their anarchistic tendencies and acts as on the special evidences of abnormality that they individually present. These seem to have been absent in Czolgosz; he was not an original paranoiac of the higher grade, like Guiteau, or one closely bordering on imbecility, like Prendergast; he was, rather, from all the evidences, of average normal mentality but misled by the more vicious social tendencies of the present time. The possibility of his being a degenerate, or mentally abnormal, appears to us to be a purely *a priori* assumption not sufficiently justified by the facts.

1. Medicine, January.
2. Alienist and Neurologist, January.

### ARTIFICIAL SUSCEPTIBILITY TOWARD THE BACILLUS OF SOFT CHANCRE.

In 1889 Ducrey reported that in successive chancroidal ulcerations produced by inoculations of human beings with the chancroidal pus there occurs constantly the same bacillus. Since then the etiologic relationship of this bacillus has been confirmed by Krefting, Colombini and others. The bacillus has been cultivated upon various media, especially serum-agar, and typical ulcerations have been produced in human beings by inoculations of pure cultures of the bacillus. Recently Himmel[1] has shown that coagulated blood of guinea-pigs, allowed to stand for a time or heated to 55 C. for half an hour, constitutes an excellent nutrient medium for the bacillus of soft chancre. He recommends cultures upon this medium as an auxiliary method of differential diagnosis in doubtful clinical cases. As was the case with previous investigators, Himmel also failed to obtain positive results by injections into animals of pure cultures of the bacillus. In guinea-pigs the bacilli, injected subcutaneously under the dura, or intraperitoneally, are rapidly destroyed by phagocytosis. Krefting and others have described in human ulcerations and other lesions the presence of bacilli in large numbers within pus cells, and Himmel suggests that in this circumstance lies the probable explanation why general infection of the bacillus of Ducrey does not occur.

Himmel tried various methods for securing on the one hand a diminished resistance of the guinea-pigs and on the other hand an increased virulence of the bacillus, but without any satisfactory results until he used injections into the abdominal cavity of four drops of lactic acid diluted with one cubic centimeter of physiologic salt solution followed by injection of the bacillus. Phagocytosis now did not occur and the animals so treated died, pure cultures of the bacilli being obtained from the peritoneal fluid. Lactic acid by its so-called negative chemotaxis prevented phagocytosis of the bacilli. By repeating these experiments, diminishing each time the quantity of lactic acid, he finally obtained bacillary cultures of sufficient virulence to kill guinea-pigs without the use of lactic acid.

He obtained similar results by another method which though more complicated and obscure in its mechanism is equally if not more interesting, namely, by first injecting anti-alexin. Anti-alexin is produced by injecting one animal with the serum of an animal of another species. The serum of the injected animal materially now reduces the bacterial action of the blood of the animal furnishing the serum injected either by directly neutralizing its alexin (complement) as urged by Wassermann, or by preventing leucocytosis and phagocytosis (Besredka). Preliminary injection of anti-alexic serum, according to Himmel, so reduces the resistance of guinea-pigs to the bacillus of soft chancre that they fall victims to otherwise harmless doses, and the bacillus acquires an increasing virulence when passed through several animals so treated. By these clever methods an originally harmless organism was rendered virulent for otherwise insusceptible animals. The experiments also throw light upon the mechanism of immunity. Whether the importance assigned by Himmel to the phagocytic leucocytes should be accepted unreservedly is perhaps questionable; it may well be that the facts observed are equally explainable from other points of view.

1. Ann. de l'Institut Pasteur, 1901, xv, 928-940.

### AMEBIC DYSENTERY IN CHILDREN.

While cases of amebic dysentery have been observed in considerable numbers in various parts of the United States, the infrequency of the disease in children accounts for the very limited data possessed regarding the disease in early life. In 1897 Holt wrote that it was then impossible to say what part the ameba coli played in the colitis of infancy and early life, and in 1898 Rotch spoke briefly of the disease as rare in children and of a very unfavorable prognosis. In a series of 35 cases reported by Harris in 1898, only 4 were under 10 years of age.

In a recent contribution to the subject of amebic dysentery in children, Samuel Amberg[1] has added very much to the clinical knowledge of the disease. Besides the four cases of Harris, he refers to two others which have been observed in the United States in which the ameba was demonstrated in the feces, and he adds five cases observed by himself, occurring in the service of Osler. His cases were from two and three-quarters to five years of age. Following the classification of Harris, four of the cases belong in the group of the very mild form; there was little effect upon the appetite and general health and the stools varied from two to six in twenty-four hours, with no fever or acceleration of pulse worth mentioning. Harris had referred to this form as the usual one in children, and the small amount of discomfort experienced by the children is a striking feature. Amberg's fifth case belongs among those of moderate severity. In two cases prolapsus recti was observed. No hepatic complications were present in any case, and amebic abscess of the liver seems to be very rare in children as compared with adults. Amberg was able to find but twelve cases in the literature where abscess of the liver followed dysentery in children, and in only two of these were amebæ demonstrated. The symptoms correspond quite closely to those in adults. The feces may be formed with bloody, mucoid masses on the surface, or there may be loose passages containing more or less blood and fragments of mucus. The diagnosis was always based upon the finding of motile amebæ containing red blood corpuscles in the feces.

Charcot-Leyden crystals in feces have often been referred to by writers upon amebic dysentery, and their presence in the feces of persons suffering from helminthiasis is well known. They were present in four of Amberg's cases, and with them were always associated

1. Bulletin of the Johns Hopkins Hospital, 1901, xii, 355-363.

eosinophile cells and free eosinophile granules in varying abundance. Because of the inconstancy of the picture of the feces, Amberg is unable to draw a conclusion regarding the relation between the numbers of amebæ, crystals and eosinophile cells. In any case, Charcot-Leyden crystals in the passages of a child should always excite a suspicion of amebic dysentery, and this is of especial importance as the amebæ may be found only after repeated examinations. The significance of the eosinophile cells must be determined by further study. Now that attention has been called to the subject by a series of carefully studied cases, we may expect further observations upon similar cases in the near future. The accurate diagnosis is of much importance from the side of treatment, as injections of quinin solutions appear to be most efficient in combating this variety of dysentery.

## AUTO-NEPHROTOXINS IN OPERATIONS UPON THE KIDNEYS.

In view of the frequency with which the kidney and connected structures are subjected to surgical operations of various kinds it may not be without interest to recall certain results obtained from experimental operations in this field. Castaigne and Rathery[1] find that in unilateral nephrectomy of rabbits the mortality is very small—in 12 cases only one death, and that was from post-operative peritonitis. On the other hand, unilateral ligature of the renal artery, of the ureter, or of the entire mass of the pedicle of the kidney is followed by a much greater mortality, namely, 34.8 per 100. In these cases death could not be ascribed to any other causes than such as were directly connected with or dependent upon the ligatures, and it would appear as if the kidney, compromised by the tying of its vessels or of its ureter, or both, constitutes a source of danger for the organism. The observation that in rabbits certain conservative operations are more dangerous than unilateral nephrectomy (the remaining kidney being healthy) may or may not be applicable to man; the facts observed are certainly worthy of consideration.

In looking further for the causes of the increased death rate after ligature as compared with unilateral nephrectomy, Castaigne and Rathery studied the microscopic appearances of remaining or opposite kidneys in these two sets of cases. In unilateral nephrectomy the remaining kidney showed no changes whatsoever of a degenerative type. After ligature of artery, ureter, or entire pedicle, marked degenerative changes are present in the epithelium of the convoluted tubules of the opposite kidney; the glomeruli also show well-marked changes. Such alterations, more commonly present in spots than in a diffuse manner, seem most pronounced after ligature of the entire pedicle.

Now, what is the mechanism of this lesion? Because it is absent in unilateral nephrectomy it can not be attributed to defective elimination of ordinary urinary constituents. It lies very near at hand to trace the lesions in the opposite kidney to the toxic action of the products of disintegration of the kidney whose vessels or ureter have been tied. In other words, may it not concern an auto-nephrotoxin similar in its general actions to cytotoxins of other kinds. The blood of animals whose ureters have been tied has been reported toxic for the renal cells of other animals. The substances that develop under these conditions may be autotoxic as well as heterotoxic. Perchance certain renal disturbances now described as the result of reno-renal reflex nervous influences or as sympathetic nephritis are the outcome rather of auto-nephrotoxins.

1. Compt. rend. de Soc. Biol., 1901, liii, 1150-1154.

## HAHNEMANNISM EXTRAORDINARY.

A journal,[1] representing what we take to be a very small fraction of extreme Hahnemannians, makes the following astounding assertion in its editorial columns: "The use of antitoxin and the crude vaccine virus belongs to the domain of material things and they should have no place as therapeutic agents in the armamentarium of the homeopath." This is certainly a very short step from Eddyism pure and simple, lacking only the sanctimonious pretensons of that pseudo-Christian cult.

## A NUCLEUS OF STATE RECIPROCITY IN LICENSING.

Representatives of the State Medical Examining and Registration Boards of the States of Indiana, Michigan, Illinois and Wisconsin met in Chicago last week and organized under the title of the Confederation of Members of Reciprocating State Medical Examining and Licensing Boards. The objects of the organization were embodied in the report of the committee to draft a policy, which was adopted and which is given elsewhere in this issue. The states formally endorsing this report will be guided by it, but will arrange an itemized standard of preliminary qualifications and medical course that will be required. This seems like a seriously conceived step toward reciprocity of licensure and we hope it will prove to be in the right direction. It appears from the report that there is left a large discretion with the several Boards, which is, we believe, as it should be. Limitations by ironclad rules, making it necessary to admit all cases alike without exception, would be a mistake and not justified by any needs. It is assumed, of course, that each Board will keep close watch of each other's methods, and the plan of recognizing each other's certificates of not less than one year's standing will help to prevent error being committed. (See pages 260 and 261.)

## THE BARRING OF CONSUMPTIVE HEALTH-SEEKERS.

In view of the recent proposed action in California, Colorado and elsewhere against the admission of consumptive health-seekers, a lay paper suggests that before New Mexico and Arizona are ever admitted to statehood, there should be a pledge required that at no time shall the consumptive be excluded from them. This

1. The Hahnemann Advocate, January.

is a matter of some interest to the medical profession as well as to the victims of tuberculosis. There is a serious moral question involved in the question whether a state has a right to shut off its climatic advantages from those who most need them, and the impropriety of such a course in states that have largely been built up by health-seekers would be obvious. In the present prevailing panic in regard to tuberculosis there is a possibility of such measures being enacted. In California it has been gravely proposed to exile consumptives to the exclusively desert regions, and boards of health are talking about isolating them like cases of smallpox or leprosy. If regulations like these should be enacted they would probably pass sooner or later into innocuous desuetude, but while they stand on the statute books they will afford opportunities for annoyance and oppression that could be ignorantly or maliciously utilized. It might perhaps be a good thing to have the legislators undergo a tuberculin test, when such laws come before them, so as to determine how many of themselves they wish to legislate into compulsory retirement.

## FOREIGN CURRENT MEDICAL LITERATURE.

In this issue of THE JOURNAL we commence the listing of titles of original articles in foreign literature, beginning with the year 1902, on a plan practically identical with that we are using for American publications. Purely casuistic articles and clinical reports on common disorders, and mere abstracts or reproductions of articles published elsewhere, will be omitted from the lists. Of course, not every foreign publication will be listed, but it is the intention to include so far as possible the leading or representative ones in all languages. The advantages of this to our readers will be obvious—it will afford them to a great extent a corresponding outlook on foreign medical literature to that heretofore only given of that of our own country. The abstracts of leading articles from foreign publications will appear as heretofore, but will be presented in the same manner as those from American periodicals. In this issue the British journals alone have been utilized, the continental literature for January not having arrived in time. This course has been adopted at the suggestion and request of a number of prominent physicians, close students of medical literature who find our weekly exhibit of the current publications of decided advantage in their work, and, therefore, wish to have it extended to contributions from foreign sources also. It is believed that the addition will be generally welcome to the readers of THE JOURNAL. The republication of titles and index will follow the same rule, so that at the end of each volume there will be a cosmopolitan résumé of the medical literature of the current half-year, thus making it practically an index medicus for the period.

## MEMBRANOUS INFLAMMATIONS OF MUCOUS SURFACES CAUSED BY THE PNEUMOCOCCUS.

Cary and Lyon[1] describe a remarkable case of acute lobar pneumonia in a boy of eleven years during which a profuse membranous exudation appeared upon nearly all the mucous surfaces open to inspection. There was also clinical and other evidence that the fibrinous inflammation involved also the pleura and the gastro-intestinal tract. A protracted and severe course terminated by lysis, and the case ended in recovery. The exudation was observed upon the mucous membranes of the mouth, tongue, throat, nose, eyes, glans penis and anus. Pure cultures of the pneumococcus were obtained from the eyes and nose, mixed cultures of pneumococcus and the golden pus coccus from the mouth and sputum. There seems to be little doubt that the pneumococcus was the essential factor in this remarkably widespread process. While pneumococcic inflammation of serous membranes are only too frequent, fibrinous exudations upon mucous membranes due to the pneumococcus seem rare. Cary and Lyon, in reviewing the cases, divide them into those occurring in connection with pneumonia and those occurring as a purely local process. All the reliable cases date back but a few years, and it is only recently that the pneumococcus has come to be recognized as capable of inducing fibrinous exudations upon various mucous membranes. Membranous inflammations of mucous surfaces caused by the diphtheria bacillus and by streptococci are not distinguishable from the pneumococcic except by bacteriologic methods. Most of the pneumococcic cases arise in childhood and early adult life. As a rule they have been mild, ending in recovery, but refractory instances occur. Almost any mucous membrane may be involved and undoubtedly the infection may be transplanted in various ways: by direct contact as, for instance, with the fingers, which in Lyon and Cary's cases were blood-stained from picking at nose and lips; by the circulating blood which may contain pneumococci in lobar pneumonia; and by swallowing of sputum and exudate. Local germicidal agents usually give good results, but failed entirely in the case that forms the text for Lyon and Cary's paper.

1. Trans. Assoc. Americ. Physicians, 1901, xvi, 379-392.

## INCREASE OF PHYSICIANS IN GERMANY.

The number of physicians in Germany is steadily on the increase, nearly 3 per cent. having been added during the past year, though this is somewhat under the figures of the years 1894 to 1899. In Prussia the increase was over 3 per cent. The increase can be better shown by the comparison of the relative additions to the profession and to the general population since 1895. From this it appears that while population has increased in the German empire 7.8 per cent. the number of physicians has increased 18.6 per cent., or over double, and in some sections three or four times as much. The proportion of physicians to the general population is given as 1 to 2000 for the German Empire as a whole, but in the cities it is much higher, ranging from 1 to 489 in Kiel to 1 to 1918 in Barmen. The university towns have naturally the largest proportion, and those where industrial operations are chiefly or alone carried on the least. Our German confrères, it will be seen, have to some extent the same problem of excess of physicians to deal with as we have here; in fact, it seems to be a world problem, and how it is to be worked out is one of the interesting questions of the social economics of the day. Just at present the conditions do not seem to meet our professional ideals of supply and demand in Germany

much more than here. It must be remembered that these figures do not include the quacks who are said to be reaping harvests in the German cities. Considering all these facts and the lesser remuneration for services of the German practitioner, one would think that the medical profession would become less attractive. It is not remarkable that there should be a decrease in the number of medical students in the universities, which was 7933 in the summer semester of 1901, as against 8633 in the corresponding term of 1898. It is feared, however, that with the late rulings in favor of the Realschule there may be an increased pressure into the ranks of medical aspirants, but as yet the number of these institutions is comparatively small and the effect may be less marked. It is not very remarkable, judging from these statistics, that German physicians migrate to other lands; they have not in their favor the domestic expansion that has thus far been our safety-valve in this country.

## Medical News.

### CALIFORNIA.

**Hospital for Deaf and Dumb Institute.**—Plans have been completed and contracts let for the erection of a hospital, 60 by 100 feet, fully equipped, for the Deaf, Dumb and Blind Institute at Berkeley.

**Children's Hospital Opened.**—The Children's Hospital, Los Angeles, for the existence of which the philanthropic women of the city are responsible, was formally opened, January 21. The hospital at present has ten beds.

**Bard Memorial Hospital Opened.**—On January 1, the $30,000 Bard Memorial Hospital at Ventura, erected by Senator Thomas R. Bard and Dr. Cephas L. Bard, in memory of their mother, Elizabeth Bard, was opened.

**Club Practice Extending.**—A society whose object is stated to be "to provide families and individuals with medical attendance and medicines, said medical attendance to consist of the attention of regular medical practitioners, and to deal in drugs and medicines filled by prescriptions and otherwise," has been incorporated with a capital stock of $100,000. Drs. Ralph Hagan and Clarence E. Stoner, Los Angeles, are the medical men on the board of directors.

**To End Hospital Undertaker Scandals.**—The San Francisco Board of Health has made an attempt to put a stop to the abuses whereby certain undertakers obtained early information of the deaths of patients, thereby extorting money from the friends or family of the deceased, by passing the following resolutions:

*Resolved*, That immediately before, or just after the death of any patient in the City and County Hospital, that the relatives or friends of said person be notified without delay by telephone, messenger, telegram or special delivery letter, and said relatives or friends be requested to give promptly a written order to an undertaker for the removal of the remains from the hospital, and, be it further

*Resolved*, That no clerk or other employe in the hospital shall have any communication or dealing whatsoever with undertakers except by written order of the resident physician, to whom the patient may have previously designated the undertaker desired. Infractions of this rule shall be followed by immediate suspension pending investigation and final action by the Board of Health.

### COLORADO.

**St. Anthony's Hospital,** Denver, will receive $4300 as the profits of a fair recently given under the auspices of the Sisters of St. Francis.

**Industrial Sanatorium a Success.**—Dr. A. N. Holmes, superintendent of the Rocky Mountain Industrial Sanatoria, near Denver, has reported to the State Board of Health the results of the treatment of tuberculosis by the industrial settlement plan. The institution has 27 patients, of which 11 are wholly self-supporting. The work of the sanatorium is performed by the inmates, with the exception of the cooking.

**Personal.**—Dr. John M. Henderson, who has been on the staff of the Rio Grande Hospital, Salida, has been appointed surgeon at Florence for the Rio Grande Railroad Company.—— Dr. James A. Hart, Colorado Springs, after twenty-five years of practice in that city, has retired. A banquet was tendered him by the medical fraternity of the city, December 19.—— Dr. Raymond St. Clair, Altman, has moved to Victor.—— Dr. Bonventura De Rosa has located in Pueblo.

**New Sanatorium.**—General W. J. Palmer, formerly president of the Rio Grande Western Railroad, has donated $50,000 cash and 100 acres of land east of the limits of Colorado Springs for a sanatorium to cost $250,000. Two buildings have been planned. The larger, which will cost $200,000, will accommodate 100 patients able to pay $20 a week for treatment. The other building will accommodate 50 or more patients who can pay little, if anything; it will be supported by revenue derived from the larger one.

**Denver Emergency Hospital Association.**—The organization of this Association has been formally accomplished. Dr. William W. Grant was unanimously elected president. The medical trustees are Drs. William W. Grant, James N. Thomas, Frank Dulin, and William K. Robinson. The object of the hospital will be to provide a place where emergency cases may be taken for immediate attention. At present there is no place where persons who receive severe injuries may be instantly attended to. If a man is poor, the police ambulance takes him to the County Hospital, and otherwise to one of the semi-charitable hospitals, but in any case it is often an hour or more before he falls into the hands of surgeons who give more than temporary relief.

**The following resolutions** have been adopted by the Medical Board of St. Luke's Hospital, Denver, on the death of Dr. Clayton Parkhill:

The Medical and Surgical Staff of St. Luke's Hospital is called upon to mourn the death of one of its most prominent members.

Dr. Clayton Parkhill was appointed attending surgeon to the hospital in 1889, and served continuously in that capacity until his death. As a surgeon he was painstaking, intelligent and careful, successful in his work, kind and gentle in the treatment of his patients. As a man, he was courteous and amiable; as a colleague he was companionable and helpful. Dr. Parkhill was one of the most brilliant of operators and the profession is indebted to him for many useful and practical surgical inventions. His counsel was eagerly sought by students and practitioners. As a writer he was clear and forcible; as a lecturer he was eloquent and thorough. He was in truth, among the distinguished of American surgeons and did much to shed luster on his chosen profession. At the breaking out of the Spanish-American war he was among the first to respond to the call of duty, and as a military surgeon he deservedly held high rank.

The staff of this hospital desires to record its appreciation of his long and valuable services to the institution, and of his many endearing personal qualities; and it extends to his bereaved family and friends its profound sympathy.

### DISTRICT OF COLUMBIA.

**The Oleomargarin Bills.**—The House Committee on Agriculture, who are investigating the proposed oleomargarin legislation, gave a hearing to Dr. George M. Kober, of the Georgetown Medical School, at its recent meeting. Dr. Kober favors oleomargarin and argued in favor of its general healthfulness.

**Projected International Health Service.**—Passed Assistant-Surgeon Milton J. Rosenau, director of the Marine-Hospital Service hygienic laboratory, recently appointed special commissioner to the Pan-American Congress at the City of Mexico by the Secretary of the Treasury, has gone to Mexico, where he will appear before the committee on sanitation to give expert testimony relative to the projected establishment of an international health service among the American republics.

**The Typhoid Fever Bill.**—The House Committee has favorably reported the typhoid fever bill known as H. R. 8759, which it has amended so as to read as follows:

That every physician attending or called in to visit or examine any case of typhoid fever in the District of Columbia shall at once send to the health officer of the District a certificate, in ink, signed by him, stating the name of the disease, and the name, age, sex and color of the person suffering therefrom, and setting forth the street and number or otherwise sufficiently designating the house, room or other place in which the person can be found, together with such other reasonable information relating thereto as may be required by the health officer; and upon the recovery or death of such patient the physician in attendance shall, within twenty-four hours after he becomes aware of such recovery or death, forward to the health officer a similar certificate, certifying thereto.

Any person violating any of the provisions of this act shall, upon conviction thereof, be deemed guilty of misdemeanor, and shall be punished by a fine not exceeding $100. All prosecutions under this act shall be in the Police Court of the District upon information brought in the name of the District of Columbia and on its behalf. All acts and parts of acts contrary to the provisions of this act, or inconsistent therewith, are repealed.

### ILLINOIS.

**Dr. A. T. Steele,** of Charleston, has been confined to his bed since August 4. While attending a case of labor he received a stroke of paralysis.

**Railway Emergency Case.**—The consulting surgeon of the Chicago and Alton Railroad has designed an emergency medical and surgical case which is to be placed on every passenger train on the road.

**Journals Refuse Irregular Advertisements.**—Two of the daily papers of Charleston have refused to take the "ads" of traveling quacks who make towns for a one-day stand.

**Macomb Hospital.**—The deed to the land on which is to be built the new hospital of the Sisters of St. Francis, at Macomb, has been recorded, and it is expected that the hospital will be in operation before the close of the year.

**Zion Bars Doctor.**—Dr. E. F. Gavin, Waukegan, local surgeon of the Chicago and Northwestern Railway, was directed to go to Zion City to attend a youth injured by a fall from a train, but was not allowed to enter the city, and in fact, was ordered out of Zion!

**Smallpox.**—The school in the South Walnut Grove district, Independence township, has been closed on account of the prevalence of the disease.——At Kansas, 2 additional cases have developed.——Springfield had 32 cases and suspects under care, January 14.——At Decatur a new nidus was discovered, January 14, and 12 patients were removed to the isolation hospital. ——Elkhorn has 6 cases.——Cases are reported from Carlinville, Breckenridge, Cotton Hill, Freeport and Peoria.—— Smallpox is present in Coles and Clark counties. Several cases have occurred in Charleston and Rardin and a few in the country districts. One death has been reported at Westfield.

### Chicago.

**Scarlet Fever Increases.**—Scarlet fever shows an increasing prevalence. The disease increased 35 per cent. during the first 18 days of January over the last 18 days of December, while diphtheria has increased less than 10 per cent. in the same period. The figures of mortality from the two diseases are even more striking—34 per cent. decrease in the deaths from diphtheria and 25 per cent. increase in the number of scarlet fever deaths.

**Mortality.**—Exactly the same number of deaths—516—were recorded last week as for the week before. This number is seven more than for the corresponding week of January, 1901, but on the basis of population the annual rate last week is about 2 per cent. less than that of a year ago, the respective rates being 14.78 and 15.09 per 1000. The continued low mortality is a source of surprise to the officials of the Health Department in view of what are usually accounted as extremely unfavorable and unseasonable weather conditions.

**Local Tuberculosis Pavilion Needed.**—At the meeting of the Chicago Medical Society, January 8, the following resolution was unanimously adopted:

*Resolved*, That the Chicago Medical Society petitions the Honorable Board of Commissioners of Cook County to erect a pavilion for tuberculous patients who are gravely ill in the city of Chicago, within practical distance of the center, so as to command the attendance of an efficient medical and surgical staff; and it further petitions that the modern plan of treatment of tuberculous patients who offer hope of recovery be instituted in small cottages located at some suitable place in Cook County.

**Smallpox.**—There have been but 18 cases this month and only 30 since Aug. 12, 1901. Some apprehension had been felt lest the hundreds of thousands of visitors during the shopping season should spread the contagion broadcast, but Chief Medical Inspector Spalding's careful search reveals only 5 out of the 18 cases the origin of which could not be traced directly to imported cases. As has been the uniform rule during the thirty-four months of this epidemic, not one of these had ever been vaccinated. Although the contagion has been frequently introduced and thousands have been exposed, the disease picks out with unerring accuracy only those "never vaccinated."

### INDIANA.

**Epidemic Diseases.**—Richmond is said to have 176 cases of measles.——Scarlet fever is reported to be epidemic in Putnam County.——Diphtheria is still prevalent at North Judson.

**Hospital for Consumptives.**—The State Board of Health states in its annual report that 4000 deaths occur annually in the state and that there are at least 25,000 sufferers from the disease, probably 1200 of whom must be cared for at public expense. The board therefore recommends the erection of a state hospital.

**Mortality.**—Reports to the State Board of Health show there were 2842 deaths in the state in December, 1901, an annual rate of 13.3 in 1000. In the preceding month there were 2402 deaths, and in December, 1900, there were 2880. By important ages the deaths were as follows: Under 1 year, 380, or 14.8 per cent. of the total number; 1 to 4 years of age 151, or 5.6 per cent.; 65 or over, 765, or 28.7 per cent. From important causes the deaths were: pneumonia, 380; tuberculosis, 359; typhoid fever, 86; diphtheria, 53; scarlet fever, 18; measles, 3; whooping cough, 11; cerebrospinal meningitis, 22; influenza, 25; puerperal fever, 14; cancer, 81; violence, 148. The urban death rate was 15.4 per 1000, and the rural 12.2 per 1000.

**Morbidity.**—The cases of smallpox reported numbered 465, in the following counties: Vanderburg, 40; Kosciusko, 26; Tippecanoe, 41; White, 1; Union, 13; Lawrence, 1; Spencer, 31; Vigo, 1; Owen, 3; Scott, 12; Pike, 1; Marshall, 3; Switzerland, 1; Randolph, 3; Dearborn, 9; Warren, 1; Knox, 4; Wabash, 19; Warrick, 41; Shelby, 12; Jefferson, 80; Marion, 12; Wayne, 40; Davis, 41; Decatur, 3; Madison, 2; Perry, 20, and Delaware, 4. One death occurred in Warrick County and one in Tippecanoe. Reports from county health officers show that the following diseases prevailed in the order given: Tonsillitis, bronchitis, influenza, rheumatism, pneumonia, typhoid fever, intermittent fever, pleuritis, scarlet fever, diphtheria, diarrheal troubles, erysipelas, inflammation of the bowels, measles, dysentery, puerperal fever, whooping cough, cerebrospinal meningitis, cholera morbus and cholera infantum.

### KANSAS.

**Damages Against Doctor.**—In the case of G. W. Coffee against Dr. William C. Bower, Lebanon, for $5000 damages resulting from malpractice, the jury assessed the damages at $1200. Dr. Bowers has moved for a new trial.

**Penalty of Non-Registration.**—The County Board of Wyandotte County has declined to pay bills of eight physicians for services rendered at autopsies because they had not registered. Unregistered practitioners have no legal recourse.

**Centenarian Practitioner.**—Dr. John P. Wood, Coffeyville, passed the century mark, January 4. He has been in practice for 78 years and is undoubtedly the oldest practicing physician in America, if not in the world. He still makes his circle of calls on patients, but for the last few years has declined to take night calls.

**Smallpox.**—An Ellinwood anti-vaccinationist practitioner has smallpox.——Cloud County has an epidemic, with 20 cases at present.——Several cases are reported near Hutchinson and one school has been closed.——A number of cases are reported east of Belleville, and several district schools have been closed ——In Linn County a camp of woodchoppers is isolated on account of smallpox.——Topeka has 6 cases.——Fort Scott has 4 cases in its isolation hospital.

### MARYLAND.

**Tetanus Deaths.**—In 1901 there were 32 deaths in Baltimore from tetanus, 26 being in infants under 21 days old; 12 occurred in one ward. In no case did it follow vaccination.

**Baltimore Deaths.**—The number of deaths for the week ended January 18, was 207; males 111, females 96; white 156, colored 51. The chief causes were pneumonia 26, consumption 22, diphtheria 6, typhoid fever 4, and scarlet fever 2.

**Feeble-Minded School Report.**—The seventh biennial report of the Maryland Asylum and School for the Feeble-Minded shows that there are 95 inmates. A new cottage has been erected with a capacity for 75 additional children and a new school building completed at a cost of $42,888.

**Dr. Wiener's Anniversary.**—Dr. Morris Wiener celebrated his ninety-first birthday at Baltimore, January 15. He was born in Vienna and educated at the medical school there. He first settled in New Orleans, coming to Baltimore in 1848. He is the author of several dramas and was an editor of the *German Correspondent* here for a number of years.

**Report of State Hospital.**—The one-hundred and fourth annual report of the Maryland Hospital for the Insane shows that there are now 530 patients there: 286 males and 244 females. Of these, 22 are private and 508 public patients. During the year 16 were discharged as recovered, 10 as improved, 13 as unimproved, and 32 died. Attention is called to the large number of chronic cases which present no hopes of recovery and but little improvement.

**Quarter-Centennial of Johns Hopkins University.**—Elaborate preparations are being made for the celebration of the quarter-centennial of Johns Hopkins University on February 21 and 22. Dr. D. C. Gilman, president emeritus, will deliver the commemorative address February 21, followed by an official reception to the delegates. In the evening there

will be a general reception in McCoy Hall. President Remsen will deliver his inaugural address on the next afternoon at three, and will outline the future policy of the University. The annual meeting and banquet of the alumni will be held the same evening, and Hopkins graduates are expected from all parts of the United States.

**Re-election of Senator Gorman.**—The legislature of Maryland has elected Arthur P. Gorman as Senator from Maryland, to take effect March 4, 1903. The members of the medical profession may congratulate themselves on Mr. Gorman's re-election, for no member of that body has been a better friend to them. The members of the regular profession who have had to deal with medical matters pending in the Senate will remember Senator Gorman's universal courteousness and attention to their interests. The first Pan-American Medical Congress owed its tangible existence and success to the efforts of Mr. Gorman, who succeeded in re-introducing and finally securing the appropriation of $10,000 for this Congress after its defeat by Mr. Holman in the House of Representatives. His subsequent interest and efforts in behalf of the medical profession in defeating the obnoxious anti-vivisection bill is one of the last but not least services to the profession. All proper medical legislation before Congress will find a friend and champion in Senator Gorman.

## MASSACHUSETTS.

**Decoration for Dr. Hogner.**—King Oscar of Sweden has shown his appreciation of the attainments of Dr. Richard Hogner, Boston, by making him a Knight of the Order of Vasa.

**Refuse Contract Work.**—The physicians of Cape Ann have banded together and have voted to take no more contract work from fraternal societies. Let us hope that the members will hold to their high standard and that past history of rate-cutting will not be repeated.

**Emergency Station.**—The new city hospital relief station on Haymarket Square, Boston, is almost ready, and will be opened about February 1. It is on the site of the old Boston and Maine terminus. The hospital has a capacity of 25 beds. It will have 3 ambulances in constant service. The building is three stories in height, has a frontage of 71 feet, and is 120 feet in depth.

**Massachusetts State Sanatorium for Consumptives.**—The trustees of this institution have sent out a circular to physicians, calling attention to the fact that in no sense is the sanatorium to be considered a "consumptives' home," but rather an institution where the patients with slight disease can be sent with a hope of cure, or of such amelioration of symptoms that they may become wage-earners again. It is an educational institution where the patients are taught the simple but important laws of hygienic living, and as such is a factor in the foundation of preventive medicine. Cases suitable for treatment are those in which there may be signs of incipient disease only. Less favorable cases, but still suitable for treatment, are those showing only slight changes of temperature; some impairment of general strength, with one or both apices showing dulness, with râles, sometimes even with cavity formation, if a dry condition seems to prevail; absence of all symptoms showing laryngeal and marked digestive disturbance. The attending physicians of the Sanatorium urge the members of the profession to visit the institution, that they may observe the methods employed there. A single visit will be far more convincing than any other method of information. The superintendent, Dr. Walter J. Marcley, will always be glad to welcome members of the profession and explain the methods employed at the Sanatorium.

## MISSOURI.

**New Hospital Completed.**—The new hospital of the Confederate home at Higginsville has been completed at a cost of $15,000. At present the home has 150 inmates, the largest number in the history of the institution.

**Dr. Vilray P. Blair,** late surgeon in the African Royal Mail S. S. Co., has returned to St. Louis much improved in health. He has had interesting experiences on the West Coast of Africa, which were the subject of a paper he recently presented to the City Hospital Society.

**Dr. Carson,** president of the St. Louis Medical Society, has appointed his rival in the presidential race, Dr. King, chairman of one of the important committees, and the ex-president, Dr. Newman, to the chairmanship of another. The society is harmonious and largely attended.

**Medical Director Appointed.**—Dr. Leonidas H. Laidley, St. Louis, has been appointed Medical Director of the Louisiana Purchase Exposition. His duties begin at once in the oversight of the workmen and the construction of the temporary hospital. There are many applications for assistant positions.

**Tetanus-Antitoxin Inquiry.**—The Board of Health of St. Louis is scheduled for a thorough investigation, which follows closely upon the antitoxin inquiry recently closed. The mayor seems determined that each city department shall prove its efficiency, and when the verdict in the antitoxin case is rendered, there will be further search into the efficiency of each branch of the health service. Suits have been entered against the city by the parents of some of the children who died from tetanus, and other suits will undoubtedly follow.

## NEW YORK.

**Gift to Academy.**—Mr. Charles T. Ham has presented $5000 to the Rochester Academy of Medicine, to be used to further medical research.

**Change of Name.**—The Women and Children's Hospital Association of Syracuse has changed its name and will hereafter be known as the Syracuse Hospital for Women and Children.

### New York City.

**Norwegian Hospital, Brooklyn,** has received for several years an anonymous annual donation of $3000. It is now learned that the benefactor was Mr. Clark, of spool cotton fame, who has bequeathed the sum of $64,000 in trust to the hospital, with the provision that the interest be applied for the relief of the sick and the needy through the agency of the Norwegian Lutheran Deaconesses' Home and Hospital in Brooklyn.

**Scarlet Fever in Hebrew Asylum.**—As a result of an outbreak of scarlet fever in the Hebrew Orphan Asylum at 138th Street, several hundred children are quarantined in that institution, and many children in Grammar School No. 48 have been exposed to the disease. Many of the asylum children attend this school, but so far no cases of scarlet fever occurring among the other children in that school have been traced to the asylum.

**Manhattan Maternity.**—It is announced that very shortly the poor of the east side are to be provided with a new hospital, to be known as the Manhattan Maternity and Dispensary. It is to be built in East 60th Street, near First Avenue. Moses Taylor, Henry L. Taylor, Cornelius Vanderbilt, William Sloane and other prominent citizens are especially interested in the work. It is rumored, though not definitely stated, that the hospital is largely the gift of Henry L. Taylor.

**The New Movement in the Health Department.**—Dr. Lederle has commenced his administration of the health affairs of New York by innovations which the profession will heartily approve. He has appointed a medical advisory board consisting of Drs. Edward G. Janeway, Joseph D. Bryant, T. Mitchell Prudden, William M. Polk, Abraham Jacobi, John W. Brannan, Richard H. Derby, L. Emmett Holt, Alexander A. Smith, Francis P. Kinnicutt and Henry P. Loomis. These positions are honorary and the members receive no salary. The board selected Prof. Charles F. Chandler, of Columbia University, as consulting sanitarian; Dr. Herman M. Biggs, as medical adviser; Caspar Golderman, secretary to the board; Dr. J. H. Raymond, assistant sanitary superintendent, in charge of the Department of Health in the Borough of Brooklyn, vice Dr. Robert Black, resigned; H. E. Bramley, chief sanitary inspector, in charge of the first division, vice Dr. M. B. Feeney, resigned; R. C. W. Wadsworth, private secretary to Dr. Lederle, and Dr. Edward F. Hurd, assistant sanitary superintendent for the Borough of the Bronx, taking the place of Dr. Eugene Monaghan, resigned. The Commissioner has announced the reduction of his force by 157. This has been necessitated by the reduction of the appropriation in 1902 to $667,012. For 1901 the appropriation was $1,053,990 and $169,700 additional was expended. The positions of those dropped were not important, and the efficiency of the force will be in no way impaired.

### Buffalo.

**Marine-Hospital in Buffalo.**—Surgeon-General Wyman, of the United States Marine-Hospital service, has written to the Secretary of the Treasury setting forth the necessity of a marine hospital in Buffalo.

**Mortality.**—The health report for December shows a death rate of 15.18 per 1000 per annum. Smallpox caused 1 death; pulmonary consumption, 39, and typhoid fever, 10. The total deaths were 446, as compared with 409 in December, 1900. There were 5999 children vaccinated in the public schools.

**Resignation Explained.**—Dr. De Lancey Rochester, who recently resigned from the medical staff of the Sisters' Hospital, has issued a signed statement giving the cause of his resignation. He says:

On Monday, January 6, while making my rounds in the contagious ward, I found a case of diphtheria and told the interne to give him 4000 units of antitoxin, and to repeat the dose in twelve hours if there was no improvement. He told me that the hospital would not supply antitoxin to patients unless the patient or someone else paid for it. I told him that I thought he must be mistaken, and asked to see the Sister Superior. I asked her whether the statement of the interne was true, and she replied that the hospital could not supply antitoxin for patients unless the patient or friends or someone outside paid for it. I replied that I could not allow myself to remain connected with an institution which refused what was recognized by all scientific physicians as the only treatment of diphtheria, simply because the patient was too poor to pay for it, and proffered my resignation on the spot, and it was promptly accepted. The point that I make is that no hospital, and especially no charity hospital, has a right to receive patients and not give them the best treatment known to science, regardless of the financial position of the patient."

## PENNSYLVANIA.

### Philadelphia.

**Smallpox.**—Only 82 new cases of smallpox and 16 deaths were reported to the Bureau of Health for the week ended January 18, as against 131 new cases and 15 deaths for the preceding week.

**The Fifteenth German-American Charity Ball** will be given February 3, by the Maennerchor for the benefit of the Southeastern Dispensary and Hospital for Women and Children, and "The Pines," a Country Home for Poor Women and Children. Dr. Fred. A. Packard is president of the honorary board of managers.

**Appointments at Philadelphia Hospital.**—At a meeting of the Department of Charities and Correction, January 13, new appointments of attending physicians at the Philadelphia Hospital were made as follows: Drs. Henry M. Newbold and William Pickett, examiners of the insane, and Dr. Daniel J. McCarthy, neurological registrar.

**Bureau of Charities Report.**—The report of the Bureau of Charities showed that on December 31 there were 4525 inmates of the Philadelphia Hospital and Almshouse, an increase of 381 over the number at the same time the previous year. As a guard against smallpox, Superintendent Geary has ordered a daily medical examination of every inmate and attendant, over 5000 in all.

**Dr. Da Costa's Estate.**—An adjudication was recently filed in the estate of Dr. Jacob M. Da Costa, deceased, making distribution of a balance of $119,679. Deceased bequeathed $5000 to the Pennsylvania Hospital and $2500 to the Children's Hospital for the endowment of free beds. He left to the College of Physicians his medical library and $5000 for the endowment of the Publication fund; and to the Jefferson Medical College his medical museum.

## GENERAL.

**Leper Settlement of the Philippines.**—The Island of Cagayan belongs to the Jolo group, and is quite isolated, being 60 miles from the nearest land. It is at present inhabited by about 200 Moros, and the work of building a town will be commenced as soon as satisfactory arrangements can be made with the natives. The plans have been perfected for some time. It is estimated that there are about 20,000 lepers in the Philippines, the rounding up of which will be no easy task for the Health Commissioners.

**Dr. Rixey Promoted.**—Captain Pressley M. Rixey, medical director U. S. Navy, formerly attendant physician of President McKinley, has been nominated as Surgeon-General of the Navy, by President Roosevelt, in ratification of the promise of his lamented predecessor. This promotion will give Dr. Rixey the rank of rear admiral. He succeeds Rear-Admiral William K. Van Reypen, who is placed on the retired list to-day, with the rank and retired pay of a senior rear admiral. Dr. Van Reypen has been in the service over forty years.

**Health of Havana.**—Major Gorgas, chief sanitary officer of Havana, has sent to the War Department at Washington a report on the health of Havana, in which he says:

The entire health of the city for the year just ended over the preceding years is something wonderful. There has been a very big decrease in the number of deaths in almost all of the different diseases. This is especially true of yellow fever. There have been few cases in comparison with the record last year, and the last three months of the present year were absolutely free from the disease, which is wonderful, and has not happened in the history of Havana in years of which we have any sanitary statistics. The cause of the decrease in yellow fever is undoubtedly due to the work on the theory that the mosquito is the transmitter of the disease. During the month of December there has been no yellow fever and no smallpox.

**Two Assistant Surgeon-Generals Retire.**—Col. Dallas Bache, recently stationed at Los Angeles, Cal., has retired from the Army after a service of over 40 years. Col. Bache was born in the District of Columbia, entered the service in 1861, and became colonel and assistant surgeon-general in 1895. Col. Charles R. Greenleaf, who has also retired, is a native of Pennsylvania, but entered the service as assistant-surgeon of the 5th Ohio Infantry at the beginning of the war of the rebellion. He reached his present army status in 1896, and has since rendered valuable service in the Philippines. Dr. Greenleaf has been recently stationed at San Francisco.

## CANADA.

**Handsome Donation to Science.**—A prominent and wealthy citizen of Ottawa, Ont., has donated a large sum of money to the Medical Faculty of McGill University for researches in the possible methods of a cure for consumption. The work will be conducted under the supervision of Professor Adami, and Dr. A. G. Nichol has been appointed to prosecute the researches under him.

**Hygiene in Schools.**—Dr. Ruttan, of McGill, recently delivered a lecture to the high school pupils of Montreal on the important question of "School Hygiene," in the course of which he advocated the appointment of physicians to inspect the schools. He instanced the case of Boston, New York, Philadelphia, Washington and Chicago, and strongly advocated a similar system for Montreal.

**Vaccination.**—Dr. Laberge, the Medical Health Officer of Montreal, has reported to the Hygienic Committee that the number of people vaccinated in Montreal since last October reaches to 19,000. A curious sect named "The Saints," near St. Catherine's, are likely to get themselves into trouble with the provincial health authorities. Smallpox has broken out among them and they refuse to be vaccinated. They have all been quarantined, and unless they submit to vaccination they will have the option of going to jail.

**College and Hospital Amalgamation.**—It has been definitely decided by the Governors of the Western Hospital and the Medical Faculty of Bishop's College University, Montreal, that it will be in the interests of both for the amalgamation to take place. For some time the Western Hospital, owing to a largely increased prosperity in the past few years, has been looking about for larger premises, and a new site having been obtained, the construction of a new and more modern hospital will be at once begun. The Medical Faculty of Bishop's will take over the old Western Hospital at the beginning of the session of 1903.

**Indian Vital Statistics.**—According to the recent census the Indian population within treaty limits in Canada numbers 99,527, which is an increase of 517 over 1900. During 1901 there were 2,479 births and 2,240 deaths. In 1900 the births were 2,333, the deaths 2,557. The Indian Commissioner at Winnipeg has recently reported to the Indian Department at Ottawa upon the question of child marriage among certain Indians, chiefly among the Blackfeet, Piegans and Bloods, and advises that unless the influence of agents and missionaries does not bring about a reform that the Department prohibit child marriage entirely.

**Suit for Alleged Malpractice.**—Burns versus Atherton is a case of considerable interest to the profession in the Maritime Provinces at the present time. Dr. A. B. Atherton, of Frederickton, N. B., is being sued for $5,000 for the loss of an arm. It appears that the appellant came to the doctor with a dislocation of the shoulder of some five months' duration. Dr. Atherton sought to effect reduction and in the act it is stated ruptured the axillary artery. Amputation of the arm was subsequently performed, and hence the resultant suit. Dr. Atherton was at one time a professor in the Medical Department of Toronto University.

**Appointments.**—Dr. Phillips Weatherbe, of the Canadian Army Medical Service, Wolfville, N. S., has been appointed supernumerary to the Field Hospital Company for South Africa. —Dr. Telesphore Parizeau, lately returned from Continental hospitals, has been appointed professor of pathologic anatomy at Laval University.—Principal Petersen, Dean Roddick, of the Medical Faculty, and Dr. Ruttan have been appointed to represent McGill University at the annual dinner of the New England Society of McGill Graduates to be held at Boston on January 23.—Dr. J. Orlando Orr, Toronto, has been appointed Lecturer on Bacteriology at the Toronto Technical School.—Dr. W. H. Groves (Toronto, '89), has been appointed surgeon to the R. M. S. *Sekondi*, of the African Steamship Company, plying between Liverpool and the West Coast of Africa.—Dr. A. J. G. Macdougall, house surgeon to Toronto General Hospital,

has been appointed medical attache to the regiment in charge of Boer prisoners at Hamilton, Bermuda.

**Personals.**—Drs. Leslie and Jennie Dow, Toronto, return to the China Mission Field on January 27.—Dr. E. P. Lachapelle is a candidate for mayor at the Montreal municipal elections.—Sir James Grant, Ottawa, who has been physician to all of Canada's governors since the time of Lord Monck, lectured in Toronto last week on "How to Live to Prolong Life."—Dr. N. A. Powell, president of the Ontario Medical Association, entertained Dr. W. H. Drummond, of Montreal, during his recent visit to Toronto. A large number of medical men were invited to meet Dr. Drummond, and the profession spent a very pleasant social evening.—Dr. O. Bjornson, Winnipeg, and Dr. B. J. Bjornson, North Dakota, have gone to Europe for a year's hospital work.

## FOREIGN.

**Fear for Prof. Virchow.**—A cablegram of January 22 states that the professor is becoming weaker as a result of his fall and fracture.

**Von Ziemssen Dead.**—Privy Councilor Dr. Hugo Wilhelm von Ziemssen, the well-known medical author, died, January 21, at Munich, at the age of 71 years.

**Plague.**—Deaths from the bubonic plague in India amount to about 1000 per day; in Bombay between 140 and 200 die of the disease daily, and in Calcutta only about 25.

**Deaths Abroad.**—The death of the prominent physician and former professor of pathologic anatomy, Dr. Axel Key, is reported from Stockholm. He was the founder of the *Nordiskt Med. Arkiv* and its editor for thirty-two years.——Dr. Destrée, professor of therapeutics at Brussels, has died recently, in his 43d year.——The medical faculty of Alger, in Algeria, lost almost simultaneously last month three of its professors; Professor Blaise died suddenly while delivering a lecture, and Professors Gemy and Bourlier succumbed to chronic affections.

## PARIS LETTER.

### The New Law on Hygienic Beverages.

The new law suppressing taxes on so-called hygienic beverages, such as wine, cider, beer, is not bringing about the wished-for result. It was thought that the increased taxes on liquors would compensate for the deficiency resulting from this law, and that moreover a smaller amount of the later would be drunk. So far, however, from this being the case, there is a considerable deficit in the budget caused by the application of this law, and the hygienists can not consider that the public health will be much benefited. More wine is drunk, there being an increase of 6,000,000 of hectoliters, but on the other hand it is doubtful whether less alcohol is absorbed. Liquor-sellers had laid in large stocks of spirits so as to escape the new tax, and the fact that less alcohol has been taxed is no proof that a smaller quantity has been drunk. For the last five or six years the vintage of France has increased noticeably, phylloxera having been stamped out to a great extent by the planting of American shoots. There is at present over-production, 65,000,000 of hectoliters being produced in 1900, and 55,000,000 in 1901. The yearly consumption is only 42,000,000, which would seem to be the amount that can be drunk from a hygienic point of view, so that a good deal is left on the market. There are parts of France where wine is sold at a cent a bottle. A remedy for this would be the distillation of the inferior qualities of wine, the alcohol produced being used in the preparation of liquors, instead of the manufactured alcohol so largely employed nowadays.

### Chantemesse's New Antitoxin for Typhoid Fever.

At the Congress of Madrid held in 1898, Dr. Chantemesse had read a report on a special antitoxin he had prepared against typhoid fever. He has been doing some more work on the same subject recently and chose this as the title of his first lesson at the School of Medecine in his course of experimental and compared pathology. He has been trying this serum on a hundred patients suffering from typhoid fever, and his statistics seem to be quite favorable to this mode of treatment. Dr Chantemesse treated 29 patients at the Bastion, and they all recovered. At the Tenon Hospital out of 44 cases treated by the usual methods, there were 14 deaths, whereas 30 other cases chosen among the most serious ones furnished 4 deaths only. Dr. Chantemesse considers that the mortality in typhoid fever is much greater than is generally supposed, it being as high as 29 per cent. With this new treatment there were only six deaths out of a hundred cases, 3 from intestinal perforation, one from pneumonia, another was injected only on the 25th day, and another had a large sacral eschar. The amount injected is about 10 to 12 cubic centimeters, and the injection is made in the arm. The result is to produce in two or three days a rapid decline of the temperature, and an increase in the quantity of urine excreted. If the injection is made before the tenth day, the result is much more rapid. The temperature goes up in some cases towards the 20th day and a new injection is found necessary, 4 to 5 cubic centimeters being sufficient. Dr. Chantemesse considers that this method of treatment should be used even when the presence of typhoid fever is not a certainty. [See THE JOURNAL, Dec. 14, p. 1640.]

### The Typhoid Fever Scare at Cannes.

Last April quite a number of cases of fever were treated at Cannes, and there was a report that they were due to an epidemic of typhoid fever. Dr. Roustan, a physician of the town of Cannes, has written an article to the *Presse Médicale*, in which he endeavors to show that most of the cases seen were abdominal forms of grippe, presenting as characteristics the sudden attack, and the relatively short duration of the disease. Dr. Roustan's attempt to whitewash the medical statistics of Cannes is certainly very praiseworthy. It should be remembered that gastro-intestinal forms of grippe are surely followed by death, as proved to be the case a certain number of times at Cannes.

### Celebration of the Internes and Externes.

Every year when the examinations for the nomination of internes take place, a ball is given by the internes to the externes. This year several of the hospitals composed processions indicative of modern topics. One was the Triumph of Cocain, a procession made up by the internes of the Hôtel Dieu. The manner in which cocain is gathered, and its use either locally or by lumbar puncture is figured by different groups. It seems rather strange that it should be the hospital which lost two patients from spinal cocainization that chose this subject.

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# State Boards of Registration.

**Missouri State Board of Health.**—The State Board of Health met at Jefferson City, January 7, and re-elected Dr. A. W. McAlester (R.), Columbia, president; Dr. Benjamin G. Dysart (R.), Paris, vice-president, and Dr. Winn F. Morrow (R.), Kansas City, secretary.

**State Board of Health of Illinois.**—At the annual meeting of the State Board of Health, held at Springfield, January 14, Dr. George W. Webster (R.), Chicago, was elected president; Dr. James C. Sullivan (R.), Cairo, treasurer, and Dr. J. A. Egan (R.), Chicago, secretary.

**Wisconsin Medical Board Election.**—At the annual meeting of the State Board of Medical Examiners, held in Milwaukee, January 14, Dr. John R. Currens (R.), Two Rivers, was elected president, and Dr. Filip A. Forsbeck (H.), Milwaukee, secretary. The two new members, Dr. J. V. Stevens (eclectic), Jefferson, and Albert N. Jouris (osteopath), La Crosse, met for the first time with the Board.

**Officers of Indiana Board.**—The State Board of Medical Registration and Examination held its first regular session of 1902, January 14, at the State House and elected the following officers for the year: President, Dr. W. A. Spurgeon (P.-M.), Muncie; vice-president, J. C. Webster (R.), Lafayette; secretary, W. F. Curryer (E.), Indianapolis; treasurer, Dr. J. M. Dinnen (R.), Ft. Wayne.

**Registration in Kansas.**—The secretary of the Kansas State Board reports that up to January 8, 2587 physicians had registered. Only 6 had refused to comply with the law. The penalty for violation is a fine of from $50 to $200. Of illegal practitioners 127 have been barred from practice, about 12 of whom have made application for re-instatement. Forged or worthless diplomas caused the exclusion of 25.

**Ohio State Board Elects Officers.**—The Ohio State Board of Medical Registration and Examination met in Columbus, January 7, and re-elected the following officers: President, Dr. N. R. Coleman (R.), Columbus; vice-president, Dr. H. E. Beebe (H.), Sidney; treasurer, Dr. David Williams (E.), Columbus; secretary, Dr. Frank Winders (R.), Columbus. The Board disposed of the case of G. A. Purpura, an Italian of Cleveland, charged with practicing medicine under another man's certificate, by revoking the certificate.

**State Board of Health of Rhode Island.**—The following is the result of the examination for state license, held at Providence, January 2; percentage required to pass, 75; number of questions, 70; number of candidates, 9; passed 4, rejected 5:

PASSED.

| Candidates. | Sch. of Pract. | College. | Year Grad. | Percent. |
|---|---|---|---|---|
| 145 | R. | Tufts College Medical School | 1901 | 82.6 |
| 146 | R. | Harvard | 1900 | 86.8 |
| 151[1] | R. | Georgetown Univ. Medical College | 1901 | 81.6 |
| 152[1] | R. | Baltimore Medical College | 1901 | 84.5 |

FAILED.

| | | | | |
|---|---|---|---|---|
| 147 | R. | Tufts College Medical School | 1894 | 70.4 |
| 148[1] | R. | Baltimore University | 1901 | 71.0 |
| 149 | R. | Saginaw Valley Medical College | 1900 | 73.9 |
| 150 | R. | Dartmouth Medical College | 1900 | 72.7 |
| 153 | R. | University of Genoa | .... | 59.4 |

1. Supplementary Examination in 4 subjects, 30 questions.

**Ohio State Board of Medical Registration and Examination.**—The following is the result of the examination for state licenses held at Columbus, December 10, 11, 12; percentage required to pass, 75; subjects, 9; number of questions, 90; number of candidates, 30; passed, 23; rejected, 7:

PASSED.

| Candidates. | Sch. of Pract. | College. | Year Grad. | Percent. |
|---|---|---|---|---|
| 60 | H. | Dunham Medical College, Chicago | 1901 | 76 |
| 61 | R. | Rush Medical College, Chicago | 1901 | 87.5 |
| 62 | R. | Western University, London, Ont | 1901 | 92.5 |
| 63 | R. | Columbian Univ., Washington, D. C. | 1901 | 85 |
| 64 | R. | University of Pennsylvania | 1899 | 91 |
| 74 | R. | University of Pennsylvania | 1883 | 84 |
| 79 | R. | University of Pennsylvania | 1901 | 87 |
| 65 | R. | University of Maryland, Baltimore | 1885 | 85 |
| 67 | H. | Chicago Homeopathic Medical College | 1899 | 75.5 |
| 86 | H. | Chicago Homeopathic Medical College | 1901 | 83 |
| 68 | R. | Western Reserve, Cleveland | 1899 | 83 |
| 72 | R. | Western Reserve, Cleveland | 1901 | 87 |
| 69 | R. | University of Michigan | 1901 | 88 |
| 70 | R. | University of Michigan | 1901 | 92 |
| 71 | R. | University of Michigan | 1901 | 88 |
| 73 | R. | Un'versity of Michigan | 1900 | 88 |
| 77 | R. | University of Michigan | 1901 | 92 |
| 75 | R. | Jefferson Medical College, Phila | 1901 | 90 |
| 80 | R. | Jefferson Medical College, Phila | 1901 | 87 |
| 76 | H. | Cleveland Hom. Coll. Hospital | 1877 | 83 |
| 81 | R. | Western Penn. Med. Coll., Pittsburg | 1901 | 85 |
| 82 | P.-M. | Physio-Med. College of Indiana | 1901 | 93 |
| 84 | R. | Medical Coll. of Ohio, Cincinnati | 1898 | 79 |

FAILED.

| | | | | |
|---|---|---|---|---|
| 57 | R. | Detroit College of Medicine | 1894 | 72.5 |
| 58 | R. | University of Michigan | 1878 | 58 |
| 59 | H. | Hahnemann Medical College, Chicago | 1901 | 58 |
| 78 | R. | University of Buffalo | 1900 | 72 |
| 83 | R. | Western Reserve, Cleveland | 1886 | 38 |
| 85 | H. | Hom. Hospital Coll., Cleveland | 1885 | 68 |
| 87 | R. | Cincinnati Coll. Med. and Surgery | 1892 | 47 |

**Reciprocal Federation of State Examining Boards.**—A meeting of members of reciprocating boards was held in Chicago, Jan. 17, 1902. There were present: Drs. Curryer (sec.), Spurgeon (pres.) and Dinnen of Indiana; Drs. Currens (pres.) and Ludwig (sec.) of Wisconsin; Dr. Egan (sec.) of Illinois, and Dr. Harison (sec.) of Michigan. Dr. J. R. Currens was elected president; Dr. Dinnen, vice-president; Dr. Spurgeon, treasurer, and Dr. Harison, secretary. The following name was adopted: "The Confederation of Members of Reciprocating State Medical Examining and Licensing Boards." A committee appointed to draft a policy in matter of uniformity and reciprocity of state licenses reported as follows: 1. That a license or certificate of qualifications of at least one year's standing, based upon presentation of a satisfactory diploma and an examination before a board in specified branches of medicine and surgery, may be accepted at the discretion of a board in lieu of an examination as a basis upon which the state license may be issued. 2. That a license or certificate of qualification issued by a state board of medical examiners, of at least one year's date, based upon presentation of a satisfactory diploma and upon the recommendation of the board of medical examiners as to the reputability of the applicant, may be accepted at the discretion of the board in lieu of an examination as a basis upon which the state license may be issued. The report was adopted. States entering into reciprocity will be guided by the above, but will itemize a standard of preliminary qualification and medical course covering 48 months in a reputable college. The meeting adjourned to May next, when constitution and by-laws will be passed.

**Rhode Island.**—Since our publication on Nov. 16, the medical practice act in Rhode Island has been amended, making examination necessary before receiving a certificate.

Section 1 of the new law requires the town or city clerk to keep a register of physicians and to periodically make report from same to the State Board of Health.

Section 2 makes the practice of medicine unlawful without the registration of a certificate or authority to practice. Persons registering must subscribe and verify by oath to the said clerk his authority for practicing medicine as prescribed, together with age, address, place of birth, and school or system of medicine to which he or she proposes to belong.

Section 3 prescribes that the authority to practice medicine shall be a certificate from the State Board of Health, which board shall, upon application, after examination, issue a certificate to any reputable physician who intends to practice medicine or surgery in the State, and he shall present himself before the State Board of Health and pass satisfactorily such examination as the State Board may require. The fee for examination is $10, and not over $2 for certificate.

Section 4. "Nothing in this chapter shall be so construed as to authorize any itinerant doctor to register or to practice medicine in any part of this State."

Section 5 provides for the refusal by the board to grant certificates to persons not of good moral character, or who have violated the laws of the State, or been guilty of gross unprofessional conduct or conduct of a character likely to defraud the public; also to revoke any certificate granted by it after due notice or hearing for like cause or any fraud or deception committed in obtaining such certificate or any other cause which shall in the opinion of the board render the holder of such certificate an unfit person to practice medicine in the State. It also provides for legal proceedings, for administering oaths and the summoning of witnesses, and that any person swearing falsely shall be guilty of the crime of perjury. It provides also for appeals to the Appellate Division of the Supreme Court.

Section 6. "Nothing in this law shall be so construed as to discriminate against any particular school or system of medicine or prohibit gratuitous services in cases of emergency, nor does this chapter apply to commissioned surgeons of the U. S. Army, Navy, or Marine-Hospital Service, or to legally authorized physicians of another State, called to see a particular case, in consultation with a registered physician of this State, who do not open an office or appoint any place in this State where they may meet patients or receive calls.

Section 7. "Complaints for violation of the provisions of this chapter shall be made by the Secretary of the State Board, and such secretary shall be exempt from giving surety for costs on any complaint made as aforesaid.

Section 8. "Any person who, not being lawfully authorized to practice medicine within this State, and so registered according to law, shall practice medicine or surgery or attempt to practice medicine or surgery, or any of the branches of medicine or surgery, after having received therefor or with the intent of receiving therefor, either directly or indirectly, any bonus, gift, or compensation, or who shall open an office with intent to practice medicine or shall hold himself out to the public as a practitioner of medicine, whether by appending to his name the title of doctor or any abbreviation thereof, or M.D., or any other title or designation implying a practitioner of medicine, or in any other way, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined $50, and upon each and every subsequent conviction shall be fined $100 and imprisoned thirty days, either or both, in the discretion of the court; and in no case when any provision of this chapter has been violated shall the person so violating such provision be entitled to receive compensation for services rendered."

The law does not provide for the times of meeting of the Board, but they are held quarterly, in January, April, July and October, as in the previously published law.

The Secretary of the State Board of Health is Dr. Gardner T. Swarts, Providence.

## Correspondence.

### Unjust Rejection of Applicants to Medical Societies.

PARIS, ILL., Jan. 14, 1902.

*To the Editor:*—When a young man has been turned down by some clique or someone who is jealous of him, he naturally feels that he has been unfairly treated, and is an enemy of medical societies as long as he lives. I believe in giving the young man a chance to show that he is a gentleman; then if he shows himself unworthy it is easier to deal with him as a member of a medical society than as an outsider. I believe that many a young physician who would have proved himself a faithful and honorable member of the profession, has become a quack because he has been deprived of the good influences of a medical society. My experience as a member of a board of censors has shown how quite a number of bright young men are kept out of our medical societies.

It is a significant fact that where there is a specialist on the board, an applicant who practices his specialty is quite likely to have been guilty of some irregularity and is therefore ineligible.

If the case is brought before the society, a few whose reputations are a little shady—like the pickpocket who cries stop thief—make frantic appeals for the honor and good name of the society, and vote against the applicant, while a large majority of the members present do not vote. Respectfully,

W. H. TEN BROECK, M.D.

# Book Notices.

CLINICAL HEMATOLOGY. A Practical Guide to the Examination of the Blood, with Reference to Diagnosis. By John C. DaCosta, Jr., M.D., Assistant Demonstrator of Clinical Medicine, Jefferson Medical College; Hematologist to the German Hospital, etc. Containing 8 Full-page Colored Plates, 3 Charts, and 48 Other Illustrations. Philadelphia: P. Blakiston's Son & Co. 1901.

Hematology has grown with remarkable rapidity during recent years. The present work is in every respect a worthy companion of its predecessors in the same field in this country, namely, the books by Cabot and by Ewing. The purpose is to furnish a practical guide to blood examination by methods adapted to routine clinical work and to furnish the data necessary to interpret the findings according to their true values as clinical signs. The style is clear and pleasing. The colored illustrations made by Mr. E. F. Faber show artistic skill and faithful reproductions of structural details. The information furnished seems to be all that any one may expect in a book of nearly 500 pages and it is arranged in a very practical and satisfactory manner. The references to the literature are given at the bottom of the pages, and they are arranged in uniform manner, the year, volume, and page being given in the order mentioned. In addition to the usual index there is an index of authors filling nearly six pages.

The author has succeeded in including facts of the most recent acquirement, and literature from 1901 is freely quoted. The specific precipitation test for human blood is described (pages 88 and 89). In this section and again in the index the name Uhlenhuth is misspelled Uhlenmuth. The agglutination test of blood serum is referred to as Widal's test (page 86). On account of the cloud which rests upon Widal's right to be thus distinguished (see statement of circumstances by Durham, *Jour. of Exp. Med.*, 1901, v., 354) many would no doubt prefer to have Widal's name given less prominence in connection with some of these reactions.

The original data given in the book represent something like 4000 examinations of the blood in various pathologic conditions. The author has improved his opportunities well, and he is entitled to the hearty congratulations of his colleagues for the thoroughly satisfactory and comprehensive manner in which he has fulfilled the task before him.

ANATOMY IN ITS RELATION TO ART. An Exposition of the Bones and Muscles of the Human Body with Especial Reference to Their Influence Upon Its Actions and External Form. By George McClellan, M.D., Professor of Anatomy of the Pennsylvania Academy of Fine Arts. Illustrated by 338 Original Drawings and Photographs Made by the Author and Expressly Prepared for This Work. Cloth. Pp. 133. Price, $10.00. Philadelphia and London: W. B. Saunders & Co. 1901.

This work has been prepared for art students. The artist's aim is to know the human form so that he may reproduce that form on canvas or in marble. The physician and those who are interested in physical training, or in anthropology, will also find in this book a wealth of suggestions for physical development. The illustrations consist of photographs of the nude male and female forms in various poses, side by side with photographs of some of the masterpieces of sculpture in like poses. Photographs of the skeletons by the side of the living nude form in the same positions make startling parallels. The book certainly will be a welcome one to the artist whose ideals are those which come nearest to nature. The descriptive text is in simple language, accurate, and in detail sufficient to describe the illustrations. The book is a magnificent production and a credit alike to Prof. McClellan and to the publisher, and a fair sample of American enterprise in a new field.

REGIONAL ANATOMY OF THE HEAD AND NECK. A Text-Book for Students and Practitioners of Dentistry. By William T. Eckley, M.D., Professor of Anatomy in the Chicago College of Physicians and Surgeons, etc., and Corinne B. Eckley, M.D., Professor of Anatomy, Chicago School of Anatomy and Physiology, etc. In One Octavo Volume of 240 Pages, with 36 Engravings and 20 Full-page Colored Plates. Cloth. Price, $2.50 net. Philadelphia and New York: Lea Brothers & Co.

The authors of this work have successfully endeavored to make plain the intricate anatomy of the head and neck. The puzzling phenomena of reflex pain in sound teeth due to remote lesions, is fully considered from the standpoint of the dentist; a chapter is devoted to the boundaries and triangles of the neck. Though written primarily for the dental student and practitioner it will be found a convenient book of reference for the physician. The plate illustrations are excellent and numerous. The mechanical workmanship of the volume is in every respect a credit to the publishers.

WATER AND WATER SUPPLIES. By John C. Thresh, D.Sc. (London), M.D. (Victoria), D.P.H. (Cambridge). Third Edition, Revised and Enlarged. Cloth. Pp. 527. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1901.

This is the third edition of a standard work which, though small in size, covers its subject to such an extent that it is perhaps as often quoted as any. The author's remarks are throughout judicious and his ideas as to the importance of the study of the source of water supply as well as the using of chemical and bacteriologic examinations are such as ought to be pretty thoroughly impressed upon those who have to do with this subject. The legal portion of the work has been revised and may be presumed to be thoroughly up to the most recent English laws. He has also added a chapter on the protection of water supplies. The book is one that will maintain its position as one of the leading works on its subject.

PHOTOTHERAPY. By Professor Niels R. Finsen, Copenhagen. Translated from the German Edition, with an Appendix on the Light Treatment of Lupus by James H. Sequeira, M.D. Lond., M.R.C.P., Dermatological Assistant, etc. London: Edward Arnold. 1901.

This is a small book of 79 pages containing Finsen's papers on, 1, the chemical rays of light and smallpox; 2, light as a stimulant; 3, the treatment of lupus vulgaris by concentrated chemical rays. An editorial abstract of the French issue appeared in THE JOURNAL, Sept. 15, 1900. The profession in general are probably well acquainted with the favorable opinion of those best qualified to judge of Finsen's light treatment of lupus. The appendix by the translator gives the results obtained up to the present time. The book is interesting reading and may be said to be the cornerstone of phototherapy.

# Married.

FRANK H. RUSSELL, M.D., to Miss Clara Flatt, both of Eldred, Ill., January 1.

JOHN H. SIEGEL, M.D., to Miss Estella C. Peers, both of Collinsville, Ill., January 8.

AMOS F. MOORE, M.D., Dixon, Ill., to Miss Frances C. Smith, of Cheboygan, Mich., January 21.

ROBERT A. MCLEAN, M.D., San Francisco, Cal., to Mrs. Viola Girven, of Los Angeles, Cal., January 6.

EUGENE MARTIN, M.D., Chicago, to Mrs. Hertha von Cotzhausen, of Milwaukee, Wis., January 11.

WILLIAM G. RICE, M.D., Muncie, Ind., to Miss Minnie R. Sutherland, of Cheboygan, Mich., January 1.

FRED JOHNSON, M.D., Lake Nibanagon, Wis., to Mrs. Mary E. Walters, Oregon, Wis., at Beloit, Wis., January 1.

CHARLES CLARENCE BILLINGSLEA, M.D., U. S. Army, to Miss Lucy Mabel Graham, of Westminster, Md., January 9.

LAWRENCE ALEXANDER CLEVERDON, M.D., Stillwater, Okla., to Sara Honora Hogarty, M.D., at Quindaro, Kan., January 15.

# Deaths and Obituaries.

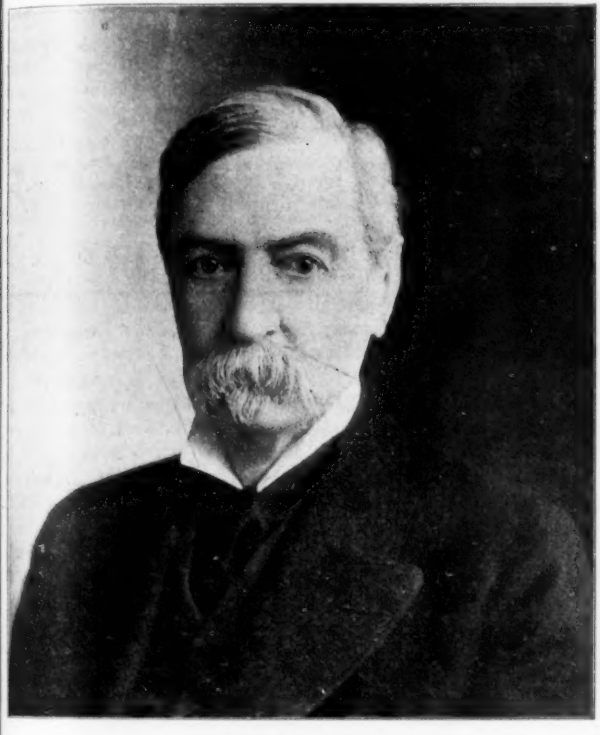
## Dr. James Rodman.

"Dr. James Rodman died at his home in Hopkinsville, Ky., a few days ago." This announcement brought grief into many a household. Wherever known he was admired and loved. The poor whom he had so often befriended, the rich who so often had assisted him to make the burden of life smoother for the poor, the children who were always his special pets, and the insane (would that they could speak!) heap blessings upon his head and place a laurel wreath of love on his cold brow. A great man has fallen, and the medical profession of Kentucky bemoans his death. As a citizen he was of the highest type; as a man, "a prince among men"; as a companion, he was the most charming, and no man ever knew a truer or more devoted friend.

In appearance Dr. Rodman was of that type that, by his very presence, commanded respect and admiration. He was tall, erect, slim of stature, always neatly attired, with a face

pleasant to look upon. His eyes laughed his thoughts, and conveyed always a truthful sincerity; his mouth showed firmness in expression, yet lighted often with a smile and betokened an unflinching integrity mellowed with much kindness. A voice always pleasing, and a rapid articulation indicated the quick thought of a well-trained mind. At repartee he was *facile princeps*. Quick, alert, with a quiet sarcasm he could always silence his adversary, yet command his respect. As a writer of pure English he scarcely had a superior—clear, convincing, and always logical. As an alienist he had but few equals; his writings in this line of thought made him an international reputation. His family was one of physicians. His brother Hugh was a leading practitioner in our capitol city, and a nephew, Dr. Wm. B., was a physician and surgeon of promise until stricken down by disease. Another nephew, who was very dear to him, is Dr. William L. Rodman, the distinguished professor of surgery in the Medico-Chirurgical College in Philadelphia and the Woman's Medical College of Pennsylvania.

Dr. Rodman was born in New Castle, Ky., in 1829, and graduated from the Medical Department of the University of Louisville, in 1849. In 1863 he was appointed superintendent



DR. JAMES RODMAN.

of the Hopkinsville Asylum for the Insane, and in 1889 resigned the position, after holding the office for 26 consecutive years. He could have remained during his lifetime, and was besought to do so, but being a man of wealth he preferred the comforts and solace of his home after this long service. The asylum during his administration was a model institution. It was often visited by the leading alienists of the country and of Europe. He was regarded by many as the best asylum superintendent in America, and his work certainly evidences the fact. He was also the first superintendent of the Feeble-Minded Institute at Frankfort, and to his clear head and able management this unfortunate class received much benefit. "Take him all in all we shall not see his like again." The state has lost a valued citizen, the medical profession an honored member, and the writer a most dearly beloved friend. Peace to his ashes!

JOSEPH M. MATHEWS.

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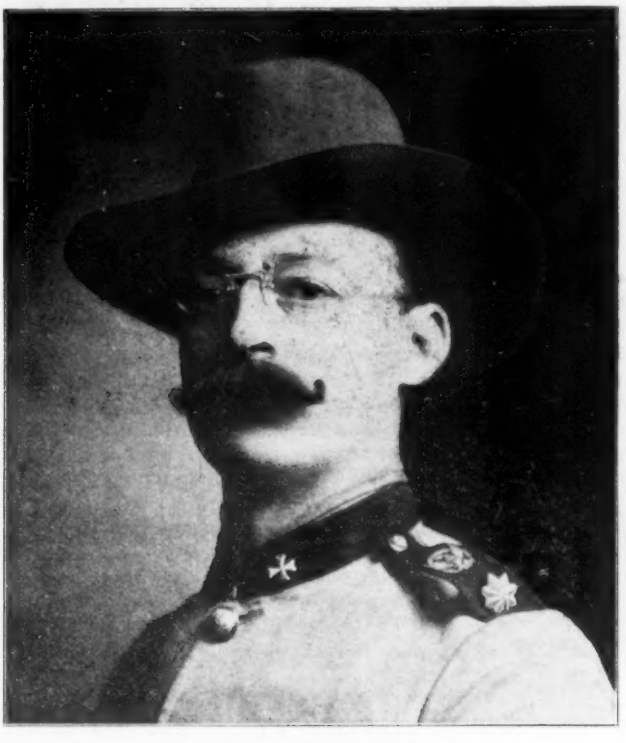
### Drs. Clayton Parkhill and John T. Eskridge.

Two eminent physicians of Denver died on January 16, and the cause of death in each case is said to have been Bright's disease. Dr. Clayton Parkhill and Dr. J. T. Eskridge were not only closely associated, but were leading men in their respective specialties of surgery and neurology. Curiously enough Dr. Parkhill's death was directly due to appendiceal abscess, a surgical affection in which he was especially interested, while Dr. Eskridge's was from cerebral hemorrhage, a condition which came within the limits of his own specialty.

Clayton Parkhill was born at Vanderbilt, Pa., in 1860. He was graduated from the Jefferson Medical College in 1883, and from the Pennsylvania School of Anatomy and Surgery in the same year. After a year's service on the resident staff of the Philadelphia Hospital he became demonstrator in the Pennsylvania School of Anatomy and Surgery. He then engaged in active practice for a short time, but was obliged to abandon his practice in the East on account of his failing health and moved to Denver in 1885. He speedily built up a valuable practice, and two years later was one of the founders of the Gross Medical School, in which he held the chair of clinical surgery at the time of his death. He was appointed surgeon-general of the state. At the outbreak of the Spanish-American war Dr. Parkhill was appointed major and surgeon. He was first ordered to the Philippines, and while in California awaiting transportation was transferred to Porto Rico, where he remained for a year as chief surgeon of the 7th Army Corps. While in service he contracted malaria, and this was followed by disease of the kidneys. A week before his death he was attending to practice although in a weakened condition. At the



DR. CLAYTON PARKHILL.

autopsy the fact was revealed that the primary cause of death was abscess around the appendix. Dr. Parkhill had an enviable reputation as surgeon and as a contributor to medical literature. He was a member of the American Medical Association, the Association of Military Surgeons of the United States, American Surgical Association, Rocky Mountain Interstate Medical Association, Association of American Anatomists, member and ex-president of the Colorado State Board of Medical Examiners, a member of the Colorado State Medical Society and the Denver Clinical and Pathological Society. He was also surgeon at St. Luke's and the Arapahoe County hospitals.

Dr. John T. Eskridge, one of the foremost neurologists of the country, died at St. Luke's Hospital, Denver, January 16. The direct cause of death was cerebral hemorrhage, but he had been afflicted for a long time with disease of the kidneys. Dr. Eskridge was recognized as one of the leading neurologists of the country, and his contributions to the literature of this subject have been many and valuable. He was born in Delaware in 1847 and was graduated from the Jefferson Medical College in 1875. He was immediately made post-graduate instructor of nervous disease in his alma mater and then practiced in Philadelphia until 1884 when, on account of his health, he moved to Colorado Springs where he speedily secured an extensive practice. After a stay of two years at Colorado Springs,

during which time the intermediate hemorrhage of the lungs from which he suffered had completely ceased, he went to Denver where he practiced until his death. He was a voluminous writer and was the author of about 170 pamphlets and treatises on neurology and kindred subjects. He was a member of the American Medical Association, of the American and the Philadelphia Neurological associations, of the American Medico-Psychologic Association, of the New York Medicolegal Association, of the Arapahoe County and Denver Medical societies and president of the Colorado State Medical Society. He served as president of the Board of Trustees of the State Insane Hospital for one term, was alienist and neurologist at the Arapahoe County Hospital, neurologist at St. Luke's Hospital, and had been at the head of the department of nervous and mental diseases at the University of Denver and the University of Colorado.

DR. JOHN T. ESKRIDGE.

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**William C. David, M.D.** Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1889, an esteemed practitioner of West Superior, Wis., died at his residence in that city from tuberculosis, January 9, after a lingering illness, aged 40. His funeral was under the charge of the Douglas County Medical Association, of which he was a member.

**John H. Spurrier, M.D.** Medical College of Indiana, Indianapolis, 1879, one of the oldest physicians of Rush County, Ind., died at his home in Rushville, after a protracted illness, January 9, aged 73. He served in the Civil war as assistant surgeon in the 16th Indiana Volunteers and later as surgeon of the 123d Indiana Volunteers. He was also local health officer for several years.

**James M. Sweeney, M.D.** Niagara University, Buffalo, N. Y., 1892, a popular physician of Utica, N. Y., died at his home in that city, January 10, from apoplexy, aged 35. He served during the Spanish-American war with the 3d U. S. Infantry and was present at the battle of San Juan Hill and was afterward on duty at the yellow fever hospital at Santiago.

**Robert Leeper Sweney, M.D.** Western Reserve University, Cleveland, Ohio, 1849, one of the oldest practitioners of Ohio, died at his home in Marion, January 12, aged 80. He was one of the founders, and for many years the president of the Marion County Medical Society, and served as surgeon of the 43d Ohio Volunteers during the Civil war.

**Alfred Neale Mahon, M.D.** Jefferson Medical College, Philadelphia, 1897, son of Dr. John B. Mahon, Pittston, Pa., died at his home in that city, January 12, from nervous prostration following typhoid fever contracted while in the United States service as surgeon on the transport *McClellan*, aged 25.

**Robert A. Brunson, M.D.** Louisville Medical College, 1841, a pioneer practitioner of Los Angeles County, Cal., and a son of Dr. Robert Brunson (Surgeon General under General Jackson in the War of 1812), died January 7 at his home in Norwalk, Cal., aged 80.

**Joseph W. B. Kamerer, M.D.** Jefferson Medical College, Philadelphia, 1871, one of the best-known physicians of Westmoreland County, Pa., died at his home in Greensburg, after three years of invalidism from paralysis, January 13, aged 56.

**William Hausman, M.D.** Northwestern University Medical School, Chicago, 1874, died at his residence in Kewaskum, Wis., January 14, aged 48. He was a member of the Brainerd Medical Society and its secretary since 1879.

**Nicholas Timary, M.D.** University of Vienna, Austria, 1875, while despondent over the death of his wife, his own impaired health and financial worry, shot himself through the heart, in his office in Cincinnati, January 14, aged 52.

**Ambroso M. Kinnamon, M.D.** Starling Medical College, Columbus, Ohio, 1873, who had practiced in Fairbury, Neb., for quarter of a century, died at his home in that city, January 9, after a lingering illness, aged 58.

**Louis D. Masson, M.D.** Albany (N. Y.) Medical College, 1900, house physician at the Cohoes (N. Y.) hospital, died at that institution, January 10, after an illness of five days, from appendicitis, aged 28.

**John N. Weston, M.D.** College of Physicians and Surgeons, New York City, 1888, is reported to have died in De Lamar, Idaho, December 30. He was formerly a practitioner of Santa Cruz, Cal.

**George H. Thuman, M.D.** Cincinnati College of Medicine and Surgery, 1881, died suddenly while making a professional call in Cincinnati, from heart disease, January 14, aged 45.

**Alexander J. Sanderson, M.D.** University of Pennsylvania, Philadelphia, 1853, an old and prominent physician of Vaiden, Miss., died at his home in that place, January 6, aged 78.

**William P. Wilcox, M.D.** College of Physicians and Surgeons, New York, 1883, formerly of Omaha, died at the Grand Pacific Hotel, Nebraska City, Neb., January 14, aged 39.

**Terrence Sparham, M.D.** McGill University, Montreal, 1841, one of the oldest practitioners of Brockville, Ont., died at his home in that place, January 11, aged 89.

**Anson S. Thompson, M.D.** Cincinnati, 1856, who had practiced medicine in Ellisburg, N. Y., for more than forty years, died suddenly at his home in that place, January 8.

**A. John Law, M.D.** Queen's College, London, Eng., 1872, a well-known physician of Long Pine, Neb., died in a hospital in Omaha, January 7.

**Stephen H. McManigle, M.D.** Western Reserve University, Cleveland, Ohio, 1873, died suddenly at his home in Harper, Kan., January 12.

**Thomas H. Bernard, M.D.** University of Nashville, Tenn., 1857, died at his home in Spring Garden, Ill., January 6.

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## Miscellany.

**A Remedy for the Commission Evil.**—The division of fees between the consultant and family physician and the auctioneering of his case by the general physician among rival surgeons and specialists, is an evil that flourishes to such a degree that it can no longer be ignored. If not stopped it will surely undermine all professional ethics and *esprit de corps* and bring us as a whole to irremediable disgrace. The remedy plainly lies in the hands of the medical societies. Let them expel a member who is convicted. When the shameless transaction exists it can not be long hidden and evidence of guilt can easily be secured. The House of Delegates of the American Medical Association at its next meeting should come to some determination upon this subject and should set the example for all smaller and less powerful organizations. A decisive command upon the part of our National Society would constitute the beginning of the end of this professional scandal.—*American Med.*

**Berthelot's Jubilee.**—A souvenir plaque struck off at the mint was presented to the French chemist, Berthelot, on the occasion of the 50th anniversary of his professional career. November 24. The address on behalf of the Académie de Médecine at the ceremonies, stated that he had "enlarged the limits of biology," and in his studies of the mechanism of animal heat had thrown new light on many chemical and vital problems.

**Medical Reports from China.**—The Imperial Maritime Customs department in China publishes a semi-annual series of medical reports from English physicians at the various ports. Dr. Hall writes from Chunking that tuberculosis in its varied form affects more than half of all the people. The glandular form is most severe and so rapid in its progress that operation yields discouraging results. Pulmonary tuberculosis, on the other hand, yields readily to treatment. Dr. Park observes in his letter from Soochow: "In this land of opium smoking, we are often called upon to treat impacted feces. Injection of hydrogen dioxid accomplishes the desired result."

**Gonorrheal Strictures in Female Urethra.**—Imbert contributes an article on this subject to the December *Annales des. Mal. des Org. Gen.-Urin.* It is based on 25 cases of stricture which he has collected and from which he deduces that it is impossible for gonorrheal strictures, like those in men, to develop in the female urethra. There is not a single observation on record in which the gonorrheal nature of the stricture is conclusively proven, he states. Before assuming the gonorrheal character of a stricture of the female urethra the possibility of other affections that may induce stenosis must be borne in mind, also of a congenital stricture, spasm, polypus, cicatrices, results of difficult child-birth or senile stricture.

**Etiology and Treatment of Chorea.**—Heubner states that in 27 cases of rheumatism that came under his observation, 2 of the patients had had chorea previously, and 32 per cent. of 77 cases of chorea had acquired the chorea with or after rheumatism. He attributes genuine chorea to a rheumatic, i. e., an infectious origin. Among the arguments in favor of this view are the prevalence of chorea in rheumatic families, the rheumatic exanthemata observed in some cases of chorea, the tendency of both diseases to a protracted course and to recurrence. Both are frequently complicated by endocarditis, irrespective of the severity of the primary affection. Chorea may also follow gonorrhea, suppurative angina, scarlet fever or measles, which in these cases are the equivalents of rheumatism. The motions in genuine chorea resemble those induced by emotions, and consequently, genuine chorea is never observed in children too young to have learned to express their sentiments by appropriate muscular movements. This assumption of the infectious-toxic etiology of chorea indicates the importance of rest in bed and of diaphoresis in the treatment, supplemented by arsenic.

**Investigation of Blood, Urine, etc., by Refraction.**—A. Strubell has improved his method of analyzing the organic fluids, etc., by their refracting properties, and announces that the results of the test are so constant that it affords new criteria for physiologic and pathologic problems. The technique is extremely simple and easy. It is effective even with a single drop of the fluid, and he considers it the most reliable as well as the most convenient of all current means of physico chemical research. The simple instrument used for the purpose is a small hand telescope, magnifying ten diameters, with a prism in the lower end, which is immersed slanting in the fluid into which the light is reflected from a mirror. When a single drop is to be examined, it is placed on the refracting surface of a second small prism on the principle of Abbé's refractometer. He publishes in the *Deutsches Archiv f. Klin. Med.* (Leipsic), lxix, p. 521, comparative tables showing the freezing point, density and refraction index of the urine in nearly fifty subjects and of a large number of other fluids. He finds that the refracting property is a specific quality that does not vary so widely as the freezing-point and the density. The latter can be computed when the proportions and refractive index are known or vice versa.

**The Problem of Fecundation.**—Boveri delivered an address on this subject at the German Naturforscher Congress in October. He explains fecundation as the supplying to the ovum of the centrosome which starts the segmentation of the cells. Two cells from different individuals coalesce to form a new being. The ovum has everything required for the new being except the impulse to start its growth. It is like a watch perfect except for the missing mainspring. The spermatozoon supplies this impulse. It is the centrosome without which segmentation is impossible. The sexual difference between the ovum and the sperm cell is not fundamental. It merely represents a division of tasks. The ovum can not develop without the missing centrosome—the sperm cell—and the centrosome can not develop without the protoplasm and food material which are contained in the ovum. It is impossible for two organisms composed of numerous cells to coalesce in this way. The process can occur only with two single cells. The pairing of two cells is not the indispensable prerequisite for development. The prerequisite is the possibility of this pairing by a single cell. The ovum probably possessed the property of independent development in primitive forms of animal life, but in the course of evolution it has divided up the task, and now development is only possible when the sperm cell entrusted with a certain part of the task can coöperate with it.

**Novel Treatment for Angina.**—Under the caption of "a natural protective influence against diphtheric and scarlatinal angina," Dr. Leopold Kürt (*Wiener Med. Woch.*, Nov. 2, 1901, p. 2054) makes a rather novel suggestion, based upon personal observation, with reference to the treatment of acute affections of the fauces and the pharynx. He believes that he succeeded in the case of himself in aborting a threatened attack of simple angina by frequent swallowing of saliva, and that he obtained great relief in an attack of faucial and pharyngeal diphtheria from the employment of the same expedient. From this experience he concludes that the secretions of the mouth may contain some substance naturally protective against diphtheria and other infections of the throat. During a period of five years that has elapsed since the observation, a considerable number of patients have been subjected to the treatment, and with most gratifying results. In order to stimulate the secretion of saliva, the use of sugar in some form convenient for gradual solution in the mouth is sanctioned. The useful influence of the saliva is attributed to the chemotactic action that it has been shown to exert, together with its mechanical effects. As an adjunct to this measure, the general use of water, in small amounts frequently, is encouraged. Further, it is, as a rule, desirable to favor cutaneous transpiration, by means of warm milk, with or without tea, particularly at a time when this takes place spontaneously. Pain attending the act of swallowing may be mitigated by pressing the hands against the ears. The method of treatment outlined in the foregoing is worthy of note on account of its novelty rather than for any particular merit it appears to possess, unless it be its innocuousness. There could be little objection to its institution in cases of simple angina, but in the presence of diphtheria, the employment of the antitoxin would render other measures of subordinate importance, and in cases of sore throat of other nature, the swallowing of the infectious material contained in the fauces and the pharynx might not be entirely free from danger.

**Encouragement from the Lay Press.**—Judging from its second annual report, the State Board of Registration in medicine is making it safer to live in Michigan and increasing the average life of her citizens. She has ceased to offer an open field to the quack and the board is doing all within its power to establish such a standard of medical qualification as will insure the highest attainable degree of safety. It has accomplished much by heading off those within the state who had been practicing without more than a bowing acquaintance with their noble profession, and has erected protective barriers against the graduates of "fake" medical schools. The man who has credentials from these swindling institutions alone must find a market for his false pretenses outside of Michigan or seek some more reputable employment in which his opportunities for mistakes do not include those of killing his fellows.

This is much to have accomplished in so brief a time and applauds the adoption of such a branch of the service. But there is more to be done. The work will not be perfected so long as there remains a single sanction of law under which any man or woman can be a practitioner in this state unless he or she can meet the highest requirements that equitable legislation can fix. It is not enough to provide against an influx of outside charlatans. We have enough medical institutions in Michigan to more than meet the demand for doctors and the inevitable tendency is to encourage the turning loose of incompetents. It is because of this that the *Free Press* has favored an authorization of the Board to examine students as to their preliminary education before they begin a prescribed medical course. This does not preclude acceptance of the fact that there may be an occasional doctor born, just as there is a poet, artist or inventor, but he is such a rara avis that it is not permissible to consider him as a vital factor in dealing with a profession that aims to stand off death where it is within the range of human possibility to do so. Ninety-nine persons out of a hundred who have not laid an educational foundation are disqualified and public safety demands that they all be barred, for attempted discrimination would only be less dangerous than an open door. The law will do what is wanted by those behind it, when it licenses only those who are best fitted to practice.—*Detroit Free Press*, Jan. 10, 1902.

**The Bactericidal Power of Certain Urinary Disinfectants.**—Bacteria may gain entrance into the urinary passages either directly through continuity of structure, or indirectly through the blood-stream; and by some it is held that infection may take place, also through contiguity of structure, by way of the lymphatics. In any event, it was extremely desirable to be in possession of means for preventing such a contingency, or for combating it should it arise. It is true a number of medicaments have been recommended for this purpose, but of most of them it must be admitted that although they may exhibit marked bactericidal activity in the test-tube they can not safely be administered in doses sufficiently large to bring about the desired results, or that they become so changed in the body when administered internally as equally to fail of their purpose. Appreciating these facts Dr. Arnold Wannier (*Centralblatt f. d. Krankheiten der Harn- und Sexual-Organe, B.*, xii, No. 11, p. 593) undertook an experimental investigation for the purpose of determining the bactericidal powers of a number of drugs that have been recommended as urinary antiseptics. He administered the drugs in question to healthy individuals, and the urine passed on the succeeding night was collected in sterile vessels. This urine was then inoculated with bouillon cultures of the respective micro-organisms and put aside in the thermostat for observation and comparison with control uninoculated specimens. As a result of this study it was found that boric acid, guaiacol and creosote, when administered internally, even in large doses, exert no influence upon the development of bacteria in the urine. Benzoic acid in small doses (9 grains daily) likewise exhibits no such action, but when given in larger doses (from 45 to 90 grains in the day) the growth of streptococcus pyogenes is inhibited, while other bacteria are on the other hand not affected. The growth of streptococcus is not inhibited by salol, while that of staphylococcus albus and proteus is retarded distinctly, and that of bacterium coli and bacillus typhi and staphylococcus aureus is not materially affected. After the internal administration of urotropin this substance can always be found in the urine within a short time. Likewise formaldehyd can always be found in acid urine and the reaction is the more distinct the more pronounced the acidity of the urine. The growth of bacteria is almost entirely prevented, although bacterium coli exhibits sluggish growth even in urine containing formaldehyd. At first this failure of growth depends only upon inhibition, while the bacteria retain their viability. After prolonged action of the formaldehyd, however, actual destruction of the bacteria takes place. Here again the bacterium coli is the most resistant of the organisms. Tannopin and tannoform exhibit no influence upon the development of bacteria in the urine.

## Societies.

FRESNO COUNTY (CAL.) MEDICAL SOCIETY.—This Society met at the County Hospital, Fresno, January 7, elected Dr. Warren T. Barr, President, and re-elected Dr. Cowan, secretary, both of Fresno.

CHARLESTON (W. VA.) MEDICAL ASSOCIATION.—At the annual meeting of the Society January 7, Dr. William W. Tompkins was elected president; Dr. James Putney, vice-president; Dr. Charles O'Grady, secretary, and Dr. John L. Stump, treasurer.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—This Society will hold its next annual meeting in Albany January 28, 29 and 30. The program contains a list of 51 titles. The president is Dr. Henry S. Elsner, Syracuse, and the secretary, Dr. F. C. Curtis.

LA CROSSE COUNTY (WIS.) MEDICAL SOCIETY.—At the annual meeting of this Society at La Crosse, January 7, Dr. Charles H. Marquardt was elected president; Dr. John A. L. Bradfield, vice-president, and Dr. Edward Evans, secretary and treasurer, all of La Crosse.

CLINTON COUNTY (IOWA) MEDICAL SOCIETY.—At the annual meeting of this Society, held in Clinton, January 7, Dr. Edward L. Martindale was elected president; Dr. Harry R. Reynolds, vice-president, and Dr. F. A. Hohenschuh, secretary and treasurer, all of Clinton.

HOUSTON (TEX.) DISTRICT MEDICAL ASSOCIATION.—At its regular meeting in Houston, January 13, this Association elected Dr. Zachariah F. Lillard, Houston, president; Dr. Edward M. Armstrong, Houston, vice-president, and Dr. E. J. Hamilton, secretary and treasurer.

HUNTINGTON (W. VA.) MEDICAL SOCIETY.—The annual meeting and election of this Society were held January 9. Dr. Henry A. Brandelburg was elected president; Dr. Morgan Baker, vice-president; Dr. Thomas W. Moore, secretary, and Dr. George M. Waldeck, treasurer.

JACKSON COUNTY (MICH.) MEDICAL SOCIETY.—This Society held its annual election, meeting and banquet, January 14. Dr. Albert E. Bulson was elected president; Dr. Martha C. Strong, vice-president; Dr. R. Grace Hendrick, secretary, and Dr. Frederick W. Rogers, treasurer.

JOHNSON COUNTY (IOWA) MEDICAL SOCIETY.—The annual meeting of this organization was held in Iowa City, January 7. Dr. John G. Mueller was elected president; Dr. William R. Whitela, vice-president, and Dr. L. Clark Mighell, secretary and treasurer, all of Iowa City.

LUCAS COUNTY (OHIO) MEDICAL SOCIETY.—At the last meeting of this Society in Toledo, Dr. William D. Stewart was elected president; Dr. Parks L. Meyers, vice-president; Dr. Francis W. Alter, secretary; Dr. Herbert E. Smead, financial secretary, and Dr. John A. Wright, treasurer, all of Toledo.

BAYONNE (N. J.) MEDICAL SOCIETY.—This Society, which held its meeting for organization in October last, is flourishing and reports a membership of 19 with the following officers: Dr. Fred M. Corwin, president; Dr. Archibald C. Forman, vice-president, and Dr. P. F. Stevens, secretary and treasurer.

HARTFORD (CONN.) MEDICAL SOCIETY.—At the annual meeting of the Society January 6, Dr. Nathan Mayer was elected president; Dr. William T. Bacon, vice-president; Dr. Joseph E. Root, secretary; Dr. George N. Bell, assistant secretary; Dr. George K. Welch, treasurer, and Dr. Frederick T. Simpson, librarian.

JACKSON COUNTY (ALA.) MEDICAL SOCIETY.—This Society held its annual meeting at Scottsboro, January 7, and elected Dr. Walter C. Sanders, Stevenson, president; Dr. Thomas E. Callan, Fackler, vice-president; Dr. James P. Rorex, Scottsboro, secretary and treasurer, and Dr. John Boggess, Woodville, county health officer.

DUVAL COUNTY (FLA.) MEDICAL SOCIETY.—This Society held its annual meeting at Jacksonville, January 7. Dr. James D. Love was elected president; Dr. Charles B. Spratt, vice-president; Dr. Jay H. Durkee, secretary and treasurer; Dr. Percy J. Stollenwerck, corresponding secretary, and Richard P. Daniel, permanent honorary president, all of Jacksonville.

TOLEDO (OHIO) MEDICAL ASSOCIATION.—At the annual meeting held January 10, the following officers were elected: President, Dr. John North; vice-president, Dr. Albert F. McVety; recording secretary, Dr. Charles P. Wagar; corresponding secretary, Dr. August C. Schnetzler, and treasurer, Dr. Frank E. Klauser. The Society then banqueted at the St. Charles Hotel.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.—At the annual meeting of this Society, held January 4, the following officers were elected: President, Dr. Samuel S. Adams; vice-presidents, Drs. John W. Chappel and Aurelius R. Shands; recording secretary, Dr. F. P. Morgan; corresponding secretary, Dr. Thomas C. Smith; treasurer, Dr. Charles W. Franzoni, and librarian, Dr. E. L. Morgan.

ASHTABULA, LAKE AND GEAUGA COUNTIES (OHIO) MEDICAL SOCIETY.—At the meeting of this tri-county Society at Ashtabula, January 7, the following officers were elected: Dr. Bryant M. Tower, Conneaut, president; Drs. William L. Gilchrist and Addison W. Hopkins, both of Ashtabula, vice-presidents; Dr. William S. King, Ashtabula, treasurer, and Dr. Ernest Crockett, Dorset, secretary.

BRIDGEPORT (CONN.) MEDICAL ASSOCIATION.—The thirtieth annual meeting and banquet of this Association were held January 4. Dr. George B. Cowell, retiring president, was the toastmaster. The following officers were elected: Dr. Frank M. Tukey, president; Dr. Fessenden L. Day, vice-president; Dr. George S. Ford, secretary; Dr. James G. Gold, treasurer, and Dr. Herbert E. Smyth, curator and librarian.

CAMDEN (N. J.) CITY MEDICAL SOCIETY.—At the annual meeting of this Society January 7, a resolution was adopted urging immediate opening of public schools to successfully-vaccinated children. The following officers were elected: Dr. Robert Casperson, presi-

dent; Dr. John F. Leavitt, vice-president; Dr. Vernon E. De Grofft, secretary; Dr. William H. Pratt, treasurer; Dr. Daniel Strock, historian, and Dr. Joseph H. Willis, librarian.

BUNCOMBE COUNTY (N. C.) MEDICAL SOCIETY.—The annual meeting of this Society was held January 6, at Asheville, when Dr. S. Westray Battle was elected president; Dr. Charles S. Jordan, vice-president; Dr. Gaillard S. Tennent, secretary; Dr. Carl V. Reynolds, treasurer; Dr. John H. Woodcock, corresponding secretary, and Dr. Frank T. Meriwether, member of Board of Control, all of Asheville. The meeting was followed by a banquet at the Swannanoa.

ANDROSCOGGIN COUNTY (MAINE) MEDICAL ASSOCIATION.—The annual meeting and banquet of this Society were held in Lewiston, January 7. The banquet was given by Dr. Oliver F. Sprague, Turner, the retiring president. The following officers were elected: Dr. Wallace Oakes, Auburn, president; Dr. Milton C. Wedgewood, Lewiston, vice-president; Dr. Edgar F. Conant, Lewiston, secretary; Dr. Benjamin G. W. Cushman, Auburn, corresponding secretary, and Dr. Benjamin F. Sturgis, Auburn, treasurer.

ST. JOSEPH (MO.) MEDICAL SOCIETY.—This Society held its first meeting of the new year January 14, with an attendance of forty. Dr. J. M. Bell read an interesting paper on "Glycosuria." A committee on re-organization and incorporation was appointed, with a view to affiliation with the State and the American Medical Associations. The election of officers resulted as follows: President, Dr. Thompson E. Potter; vice-president, Dr. Charles H. Wallace; secretary, Dr. John M. Bell, and treasurer, Dr. Charles Wood Fassett.

THE WYOMING COUNTY (N. Y.) MEDICAL ASSOCIATION.—The semi-annual meeting of this Association was held at the Castile Sanitarium, Castile, N. Y., January 14. The meeting was called to order at 10:30 a. m., when the following program was presented: "Remarks on Leprosy," J. E. Walker; "The Function of the Periosteum in the Regeneration of Bone," Dr. A. G. Ellenwood; "Alopecia," with cases, Dr. Mary Slade; "Glimpses of Medical Work in Leone Korea," Dr. Rosetta Hall, and "Apoplexy," with cases, Dr. C. C. Mann.

FREDERICK COUNTY (MD.) MEDICAL SOCIETY.—The following officers were elected at the annual meeting of this Society, held in Frederick, January 10: Dr. Samuel T. Haffner, Frederick, president; Drs. Franklin B. Smith, Frederick, and Richard W. Trapnell, Point of Rocks, vice-presidents; Dr. Ira J. McCurdy, Frederick, recording secretary; Dr. William C. Johnson, Frederick, treasurer, and Dr. Joseph E. Beatty, Middletown, librarian. A resolution was adopted forbidding any member from having any official relations with any hospital with which an irregular is connected.

ACHISON COUNTY (MO.) MEDICAL ASSOCIATION.—This Association organized January 7, at Rockport, with 14 members. John A. Postlewait, Tarkio, was elected president; Dr. Austin McMichael, Rockport, secretary, and Dr. James A. Hunter, Fairfax, treasurer. Dr. E. E. Richards, Tarkio, presented a paper on "Pneumonia," and Dr. George W. Lott, Westboro, one on "Diphtheria." The latter paper was followed by a lively discussion on the identity or non-identity of diphtheria and membranous croup. The next meeting is to be held April 9, in Fairfax.

COLES COUNTY (ILL.) MEDICAL SOCIETY.—This Society held its first annual session January 13, at Charleston, and elected the following officers: Dr. Lemuel L. Silverthorn, president; Dr. William H. Lycan, vice-president, and Dr. John H. Bush, secretary and treasurer, all of Charleston. The Society includes in its membership all the physicians of Charleston and a few located in the smaller towns in Coles County. Its aim is to eventually include all physicians in the county, to have a uniform fee-bill, to locate the dead-beats, to get better pay and to enforce the city ordinance against street vendors.

PRINCE GEORGE'S COUNTY (MD.) MEDICAL ASSOCIATION.—This Association met at Hyattsville, January 8, and appointed a committee to urge upon the State Legislature the passage of a bill to permit physicians residing in the District of Columbia to practice in Maryland, provided they are registered in the District, by presenting proof thereof to the Medical Examining Board of Maryland, accompanied by a certificate of the Examining Board of the District of Columbia, that they are in good standing. Drs. Wells, Griffith, Fox, Fowler, Gibbins and Ryan were appointed a committee to urge the bill.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.—At the annual meeting of this Association, January 13, the following officers were elected: Dr. J. Lowrey Ingle, president; Drs. John W. C. Chambers and Randolph Winslow, vice-presidents; Dr. Eugene L. Crutchfield, secretary; Dr. Martin B. Billingslea, treasurer; Drs. Charles G. Hill, William S. Love and W. B. Wolf, executive committee, and Drs. Hampson H. Biedler, G. Lane Taneyhill and James M. H. Rowland, committee of honor. At the conclusion of the meeting the members sat down to the annual banquet, at which Dr. John Parkinson, Logan, committee on admissions.

WEBER COUNTY (UTAH) ACADEMY OF MEDICINE.—The Academy, at its annual meeting held in Ogden, January 9, elected Dr. James X. Allen, Ogden, president; Dr. John S. Gordon, Ogden, vice-president; Dr. John Driver, Ogden, secretary; Dr. Samuel L. Brick, Ogden, treasurer; Dr. George W. Perkins, Ogden, librarian; Drs. John Driver, Samuel L. Brick, Ogden, and Ephraim Gowans, executive committee; Drs. George W. Perkins, James X. Allen, Ogden, and Charles F. Osgood, Morgan, committee on medical ethics, and Drs. George W. Baker, John S. Gordon, Ogden, and William B. Parkinson, Logan, committee on admission.

CLEVELAND (OHIO) MEDICAL SOCIETY.—This Society held its tenth annual meeting January 10. Dr. Frank Winders, Columbus, secretary of the State Board of Registration and Examination, read a paper on "Medical Legislation," in which he stated that the number of illegal practitioners in the state was due to the refusal of prosecuting attorneys to carry out existing laws. The following officers were elected: Dr. P. Maxwell Foshay, president; Drs. John H. Belt and George D. Upson, vice-presidents; Dr. Walter H. Merriam, recording secretary; Dr. John M. Ingersoll, treasurer, and Dr. Robert G. Schnee, pathologist.

MARION COUNTY (OHIO) MEDICAL SOCIETY.—At the annual meeting of this Society, held at Marion, January 7, Dr. Oliver W. Weeks was elected president; Dr. Robert Ramroth, vice-president; Dr. Herman S. Rhu, secretary; Dr. Ambrose Ogan, treasurer; Drs. Lewis D. Hamilton, Horatio Chisholm and A. Melville Crane, standing committee, all of Marion. An amendment to the Constitution of the Society was submitted making all legal practitioners of medicine and surgery eligible to membership, who have conformed or hereafter may conform to the laws regulating the practice of medicine and surgery in Ohio. The article of the Constitution sought to be amended provides only for the admission of regulars.

CINCINNATI SOCIETY FOR MEDICAL RESEARCH.—A meeting of this Society was held in the laboratory of the Cincinnati Hospital, January 9. Dr. Albert H. Freiberg read a paper on the structure of bone from the viewpoint of comparative anatomy. Illustrated by radiograph lantern slides from sections of the femurs of man, baboon, leopard, sheep, ox, and llama to show the relation of function to structure in these bones. The demonstration was in the nature of a preliminary communication. He also exhibited the right os-innominatum and both femora from a case of old unreduced traumatic luxation of the right hip, the specimen being taken from the museum of the Cincinnati Hospital. The luxation had existed for a sufficiently long time, and the limb had been so much used that a new rudimentary acetabulum had been formed. Radiographs of sections from the femora were shown to illustrate the changes in internal architecture and external configuration which had taken place solely as the results of changed static conditions. It was held that these changes were in conformity with the requirements of Wolff's "Gesetz der Transformation." Dr. Meyer L. Heldingsfeld demonstrated the nature of plasma cells and briefly stated the views maintained by different authorities on this interesting subject. He endeavored to show that Unna was probably correct in the views that he holds for his plasma cells, which stain without nuclei with his polychrome-methylene blue, and are similar morphologically, and in color reaction to connective tissue cells, from which they take their origin. The Marschalko cells, on the other hand, stain with Unna's polychrome-methylene blue with nuclei, and are morphologically and in staining properties similar to lymphocytes, from which they take their origin. Dr. Friedländer dissented from this view, and was of the opinion that inasmuch as Unna's polychrome-methylene blue was a nuclear stain, a nucleus must be demonstrable in the plasma cells of Unna.

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## NORTH BRANCH OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

*Meeting, held December 20, 1901.*

The meeting was called to order by the Temporary Chairman, Dr. H. Booker Mills, who introduced Dr. Jay. F. Schamberg; the latter read a paper on "The Differential Diagnosis of Variola, Varioloid and Varicella." The paper is published in full in this issue, page 215.

"Vaccine Virus, Its Preparation and the Accidents Following Its Use" was the title of a paper read by Dr. Joseph McFarland, which is also published in full on page 217.

### Recent Vaccinations—Old Scars—Complications of Vaccinations.

DR. WILLIAM M. WELCH, read a paper entitled: 1, Deductions from Studies of Recent Vaccinations; 2, Interpretation of Old Scars; 3, Complications of Vaccination. The Doctor commented on the fact that not a single person has been admitted to the Municipal Hospital suffering with smallpox, during the present epidemic in this city, who had recently been successfully vaccinated. He estimates that since the outbreak of this disease at last 500,000 people have been vaccinated in this city, and although 800 cases of smallpox have been admitted to the hospital not one of this 500,000 has been among the number. As a positive proof of the efficacy of recent vaccinations the Doctor mentioned several instances in which recently vaccinated individuals have been exposed to this disease continuously for several weeks and remained immune therefrom. Notably among these is the case of a child one year old who was sent to the hospital supposed to be suffering from variola, but who was actually affected with roseola vaccinosa, having been successfully vaccinated about ten days previously. This child remained in the smallpox wards for about three weeks and continued perfectly well. Several other similar cases have occurred in this institution, in all of which the outcome has been the same.

In every epidemic of smallpox which has occurred in this city within the past thirty years—all of which the Doctor has observed personally—whole families have been removed to the hospital because of an outbreak of this disease in the household and not in a single instance has the disease been contracted by a recently vaccinated child, even although they were constantly exposed to the disease for several weeks, living, eating and sleeping in the infected atmosphere, and in all this period there has not been brought to his notice the case of a single unvaccinated child who escaped contagion under similar circumstances.

As a further evidence of the value of vaccination mention was made of the frequent observation of cases in which vaccinated infants have been nourished at the breast of a mother suffering from varioloid, which children remained as free from smallpox as if the disease was a hundred miles away, and the food derived from the most wholesome source.

Another striking illustration of the prophylactic value of vaccination is the case of a family composed of a father, mother and six children who were recently admitted to the hospital. Two of the children had arrived at the school age and had been successfully vaccinated and both of them remained entirely free from the disease, notwithstanding the fact that they were continually in contact with the sources of contagion; the four younger children who had never been vaccinated, all had unmodified smallpox; and the father and mother, who had not been vaccinated since infancy, both suffered from mild attacks of varioloid. Numerous cases have occurred in which the older children who had arrived at the school age and were therefore compelled to be vaccinated before they could be admitted, have remained at home entirely free from the disease, while the younger children, being unprotected, were sent to the hospital suffering from the most virulent forms of the disease.

In the alterations at the Municipal Hospital made necessary by the unusually large number of patients sent there during the recent epidemic of smallpox, from 50 to 60 men were employed. As they were compelled to come in close proximity to the disease in their work, all were recommended to get vaccinated, which suggestion was acted upon by all but two, both of whom contracted smallpox.

Of the 50 persons who have been continuously exposed to smallpox in the hospital during the present epidemic, in the capacity of physicians, nurses, ward maids, cooks, laundresses and the like, not one has contracted the disease and all of these persons, with the exception of two or three, owe their immunity to vaccination. Previous to assigning them to duty each person is carefully vaccinated, even although the vaccination of infancy and a subsequent vaccination show evidence of having been successful, and attention was called to the fact that, with this precaution, the author had never seen a resident physician or nurse take smallpox.

### The Technique, Value and Object of Vaccination.

DR. JUDSON DALAND emphasized the importance of proper cleansing of the skin prior to vaccination. He considers it best, if the patient be a female, to vaccinate upon the antero-external aspect of the lower fifth of the thigh; if a right-handed male, the operation should be performed upon the antero-internal portion of the middle third of the left arm. He recommends thorough cleansing of the skin with hot water and white castile soap, after which that portion of the skin to be vaccinated should be rubbed with a sterile towel dipped in the soap and water until the upper layers of the skin have been rubbed away, and a diffused redness showing that the capillaries have been almost ruptured can be seen. This portion of the skin should then be rendered surgically clean by the free use of alcohol followed by ether. A sterilized steel, five-pointed scarificator should be drawn parallel with the long axis of the limb and the scratching continued until there appears over a surface about one-fourth inch in diameter a moisture composed of serum slightly blood-tinged, after which the scarificator should be moved at right angles until the wound presents a uniform pink appearance due to the slight exudate of blood-stained serum. The virus should then be applied and brought into thorough and intimate contact with the abraided surface by means of the scarificator, after which one of the ordinary shields should be applied, which the patient should be instructed to remove in about 12 hours, within which time, under ordinary circumstances, a sufficient scab will form to prevent re-infection of the wound from the skin or outside. The wound should be further protected by a simple surgical dressing, which should be removed, the wound cleansed and a fresh dressing applied nightly. So soon as the first evidence of inflammation shows itself, the physician should carefully cleanse the point of vaccination and surrounding skin with abundance of sterile hot water and white castile soap, and after thorough drying, the surrounding parts should be thoroughly cleansed with alcohol, care being taken not to disturb the scab. The surrounding skin should be rubbed with simple oxid of zinc ointment, or better still, with an ointment composed of five grains of boric acid to the dram of lanolin and almond oil.

A surgical dressing composed of a thin piece of lint covered with this ointment should be applied to the pustule, over which should be placed a thin layer of borated absorbent cotton, these being held in place by a roller bandage. This local treatment should be repeated once, twice or thrice daily depending upon the amount of suppuration. The repeated cleansing and dressing of the wound prevents infection of the surrounding skin and the consequent danger of its transmission to the wound, and it also avoids pus accumulating and causing sepsis.

Attention was directed to the observations made during the past two centuries, practically all of which tend to show that vaccination when properly performed and under proper circumstances renders most individuals immune to variola, and when such an individual acquires smallpox poison varioloid is produced which is usually a mild affection, in which pitting of the face seldom occurs and the mortality rate following is very low. Attention was directed to the fact that it must not be overlooked, however, that an unvaccinated person who is brought into contact with varioloid may develop smallpox.

In the opinion of the author those vaccinated not only escape smallpox, but many do not even take varioloid even when exposed to smallpox poisons, unless the quantity of the poison received be considerable, and this opinion is also held by many other eminent observers and corroborated by statistics gathered from all parts of the world, notably among which are the observations made by Dr. Koch during an epidemic of this disease in Germany, which showed the mortality rate among the unvaccinated to be 32 per cent., while that of the vaccinated was only 9.5 per cent., and in this single epidemic alone more than 2000 lives would have been saved had these people enjoyed the protective influences of vaccination.

### Tetanus Following Vaccination.

DR. WILLIAM I. KELCHNER of Camden, N. J., dealt freely with the symptomatology and treatment of a case of this character which has recently been under his care. There was but a very short period of incubation and the Doctor was inclined to look upon this complication as being caused by some micro-organism present in the virus used in vaccinating the patient. All the typical symptoms of this disease were present, there was convulsive twitching of the muscles, and the temperature at one time rose as high as 105 F. Tetanus antitoxin was injected in the early stage of the disease, and it is to the prompt use of this remedy that the Doctor attributes the recovery of the patient, who is now convalescing: strychnia was also administered hypodermically in large doses. The author felt that with care in the preparation of vaccine, virus could be produced which would be free from these micro-organisms, and he expressed the belief that in order to be of any use in cases of tetanus, the antitoxin must be given very soon after the onset of the condition.

DR. WILLIAM F. ELGIN, a physician who has had large experience in the manufacture of vaccine virus, opened the discussion. He referred to the fact that many physicians think that because a person is successfully vaccinated and then one or two years later is again vaccinated and it takes, that that person would contract smallpox, if exposed to the disease. This he believes to be an error and cites in support of his opinion the fact that he has had under his observation for the last two years about 200 or 300 young people employed in the manufacture of this virus, and has observed that when a party comes to work in the laboratory that has not been successfully vaccinated since childhood, they immediately vaccinate themselves in any abrasion that may occur on the fingers, on the hands or even on the face, sometimes having one, two or three or even more vesicles to the finger, which is often followed

by a re-vaccination in the same manner in two or three weeks afterward, and he has observed instances where the same party would again vaccinate themselves for the third time within twelve months. In his opinion in order to secure protection against subsequent vaccination, it would be necessary to vaccinate to the point of saturation, and while he does not doubt that this point can be reached, yet he feels that it is very rarely attained by the methods practiced in this country. He referred to the recommendations contained in the circulars sent out to the vaccine physicians in that country by the English government, which insist that there should be four insertions, which must equal in the aggregate one-half square inch of surface, claiming that better protection is secured by this method.

Referring to the statement previously made regarding the longer duration of immunity from human virus, he remarked the fact that Mexico was one of the most poorly vaccinated countries in the world, and in England, where they are using human virus for vaccination at the present time, they are having the same trouble with smallpox following vaccination as was experienced in this country some years ago.

He states that the animals used in the preparation of this virus are especially selected and especially tested in order to make sure that no infectious disease and especially tuberculosis is present. After this the animal is carefully washed in strong alkaline soap solution, then the hair is shaved from the abdominal region, and the animal is again thoroughly washed with soap and water, followed by bichlorid solution, and then rubbed hard with towels sterilized under 15 pounds pressure in the steam chest. The animal is then inoculated with the serum, the ordinary scalpel being used and a single scarification made. Great care is taken never to draw a drop of blood, which the speaker believes to be inadvisable in vaccinating, claiming that as soon as you have gotten through the superficial epidermis you have gotten far enough, whereas, on the other hand, he thinks that many of the complications of vaccination are due to this cause, his theory being that when the micro-organisms on the surface of the skin are carried into the subcutaneous layers of the skin, these pathogenic conditions are likely to occur. The glycerinized virus is considered by this speaker to be far preferable to the dry points, as he has observed several cases in calves vaccinated with the dry points (which was the method formerly used in the laboratory under his observation) where the odor from the wound became very offensive and the amount of discharge very great in three or four days, whereas these conditions have never been observed in an animal vaccinated with the glycerinized virus.

DR. ROBERT N. WILLSON referred to two cases of tetanus following vaccination which had recently come under his observation, both of which terminated fatally, one in 30 hours and the other in six days after the development of this condition. Both of these cases had passed through a long incubation period; in the former tetanus developed in 28 days and in the latter 21 days after vaccination; both were children of stablemen and both families lived in close proximity to the stables, one of them sleeping with its father, who was a coachman. Both of the children were vaccinated in the most aseptic manner, the arm being carefully sterilized prior to the operation, but no after precaution was taken, excepting that the wound was dressed with a shield. Both ran a course of typical vaccinia before the development of tetanus. The speaker stated that the case referred to by Dr. Kelchner in his remarks was the only case of tetanus following vaccination he had ever heard of that was not preceded by a long incubation period. Both of these cases were treated with tetanus antitoxin, the remedy being administered before any convulsive symptoms appeared, and the fact that both cases proved fatal, as well as other observations he has made, leads the Doctor to believe that antitoxin has very little value as a curative agent in tetanus, its use being rather to make the patient immune from the disease, in which capacity he believes it is invaluable. In regard to the source of the infection, the Doctor believes that we should be sure that the wound has been cared for aseptically before we can attribute it to the virus. During the past three weeks Dr. Willson and another physician have been attending to the vaccination of the students at the University of Pennsylvania and out of the 3000 men in that institution there was but one man who had not been successfully vaccinated some time in his life, and there was only one case of smallpox, which occurred in a man who had not been vaccinated since early childhood. In all about 560 of the students were vaccinated, the same virus being used as was used to vaccinate the children previously referred to who died of tetanus, the wounds were aseptically treated and there was not a single occurrence of this complication.

DR. C. P. FRANKLIN considers that many of the complications following vaccination are due to shields and is at present following out an original idea of always putting on the vaccination, as soon as the virus is placed thereon, a little piece, say three-eighths of an inch square, of silk surgical plaster, asepticized and prepared as would regularly be done for other surgical uses. He then puts on a dome-shaped aluminum shield, which is also an original idea, the dome being formed by two ribs of the metal. This serves to protect the arm from the heavy winter underclothing and from inadvertent scratching, particularly by children. He has been using this method for some time and has since had no cases of tetanus and very few cases of inflammatory conditions of the arm.

DR. HUGH HANNA referred to a case of tetanus that followed vaccination which had recently come under his observation. This case occurred in a child and the symptoms of this complication developed about 16 to 18 days after the vaccination. The sanitary conditions were far from ideal, as the house was directly connected with a stable, the door from the dining-room opening into the stable, and the Doctor is of the opinion that this, together with the fact that people were not very careful in their habits, is quite likely to be responsible for the infection. The child was vaccinated on the left thigh. All the typical symptoms of tetanus were present, the lockjaw lasted about a week, opisthotonos was pronounced and the convulsions of the muscles would come on at any time, day or night. No antitoxins or other injections were used, but potassium bromid was administered in 20 to 30 grain doses every hour for four or five hours, when it began to produce its effect, after which it was given on a two-hour basis. There was a small quantity of tincture of opium used in the early stages, but this discontinued after the first day or two. After the severity of the spasm was relieved, it was observed that the stomach did not seem inclined to tolerate the bromid much longer and other narcotics were then resorted to. This was just prior to the beginning of convalescence. In about three weeks after the onset of the attack the child was able to sit up in bed and be helped up and sit in a chair, and now, several weeks later, she is able to go about the house. Her convalescence has been rapid.

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## THE CHICAGO MEDICAL SOCIETY AND THE CHICAGO SOCIETY OF INTERNAL MEDICINE.

*Joint Meeting, held Nov. 27, 1901.*

Dr. Edward F. Wells, in the Chair.

DR. EDWARD F. WELLS delivered the Presidential Address of the Chicago Society of Internal Medicine. He selected for his subject "The Consideration of Some Important Subjects Connected with the Treatment of Pneumonia." This address was given in full on page 163 of last week's issue.

### Four Cases of Pleurisy with More or Less Permanent Pneumonic Induration.

DR. ROBERT H. BABCOCK followed with this paper and propounded the query: Are they tuberculous? Within the last three years he has observed four cases of pulmonary disease which were to him unusual and whose pathology it was difficult for him to explain on any other hypothesis than that they were tuberculous.

CASE I.—In April, 1898, a young man, about 20 years of age, was brought to his office by the attending physician because of pleuritis. About three weeks before he had complained of

pain in the right side, chilliness, cough, and malaise. He was found to have a temperature of about 101 F., and to present signs of right-sided pleurisy. Examination showed slight increase in the diameter of the right thorax, the apex beat displaced to the left nipple and the liver palpable. Pectoral fremitus was increased over the right upper lobe, but diminished below and practically absent at the posterior base. Over the right apex there were marked dulness and bronchial breathing, but no râles, as far as the third rib in front and behind to just below the ridge of the scapula. Below this level the percussion note was flat; bronchial respiration was feeble, but not absent, and there were no râles. The case was pronounced one of pleurisy with effusion, probably tuberculous, with pneumonia of the upper lobe. As three weeks had elapsed without absorption, and his temperature was still elevated, about 101 F., the author advised rest in bed and aspiration. Aspiration was done a few days later, and 20 ounces of clear straw-colored serum were obtained. Meanwhile his scanty mucous sputum had been examined for tubercle bacilli, but none discovered. After the tapping, the physical signs did not change in the least, dulness and bronchial breathing remaining just as pronounced as before. Even the position of the apex beat did not alter appreciably. In short, the patient's pulmonary and general condition persisted in *statu quo*. He was kept in bed in spite of his declarations that he felt so well he wanted to get up and did not see why he was confined to his bed. At the end of another week or ten days the attending physician, not satisfied with aspiration, called in a surgeon to aspirate again, which he did, with the result of withdrawing only about 6 ounces of serum. The lung findings remained as before, and the constitutional symptoms persisted. He did not see the patient again that year, but learned that he gradually improved, and after some weeks was able, or rather was permitted, to resume his former active habits, although his lung did not clear up. The following summer, more than a year subsequent to the author's first examination, patient consulted him again at his request. He found the right half of the thorax in nearly or quite the condition of a year earlier. There were marked dulness and bronchial breathing over the upper lobe, while below the third rib the note was nearly flat, resistance was extreme, pectoral fremitus was diminished, and breath sounds were feebly bronchial. The side was manifestly smaller than was the other. In addition to these findings, however, there were impaired resonance at the left apex with broncho-vesicular respiration and fine moist râles, the signs which are universally thought to indicate an early stage of pulmonary tuberculosis. The essayist has recently learned that the patient subsequently went to Asheville, N. C., and there died of consumption this last spring. The termination of the case seems to bear out his original diagnosis of its tubercular nature. That at the time of his first examination the lung was in a state of pneumonic consolidation, and not collapse, seemed to him certain from the physical findings. There was pleuritic exudate, but the insignificant degree of pressure, as shown by physical signs, and the results of two aspirations and the persistence of the physical signs afterwards, the evident cirrhosis of the lung a year later, all indicated, he believes, that the pleuritis had been followed by pneumonia of the interstitial type, or if of a broncho-pneumonic form, then, at all events, with subsequent fibrosis and not softening, as is usual, in tuberculous pneumonias.

Dr Babcock detailed three additional cases resembling in many respects the first one narrated. In these four cases he was impressed by several quite peculiar circumstances: The patients did not seem very ill and judged by the mildness of the pyrexia and other symptoms their illness seemed to be of a low grade of activity. All but one appeared to have recovered and are now in good health. To judge from the extent and degree of dulness, one would have expected considerable effusion. Yet the insignificant degree of pressure effects and the result of tapping demonstrated that the exudate was poor in serum and rich in fibrin, and that the degree of dulness and the quality of the respiratory sounds at the apex could not be due to pressure or fluid in the lung, since the amount of fluid was in reality small. 3. One has since died of pulmonary tuberculosis and in two of the others the personal and family history was that of tuberculosis. 4. Examination of the sputum, when any could be obtained, failed to reveal tubercle bacilli. He believes that in three instances, at least, there had existed a small tubercular focus at the apex, and that from this focus bacilli were carried by the lymph-stream, in a reverse direction, to the pleural cavity. They there set up a pleuritis which was chiefly fibrinous. From this pleuritic exudate, germs were carried to other parts of the lung and there excited a pneumonic inflammation which was interstitial and tended to fibrosis. In this way, the upper lobe as well as the pleura was involved in the process, and this combination accounted for the physical signs and subsequent findings after a lapse of many months.

DR. N. S. DAVIS, JR., emphasized what Dr. Wells had already said in regard to the prophylaxis of croupous pneumonia. The members of the profession have been very remiss in attempting to practice any measures that would be prophylactic in this disease, and particularly remiss in teaching the public that prophylaxis is possible. It is frequently said in the recent literature of the subject that the disease is becoming more and more prevalent and fatal. Certainly, statistics would seem to show that, and yet if we stop to think a moment these statistics are drawn almost exclusively from large cities in which the population is unusually dense, and has been increasing during the last ten or fifteen years and growing more and more dense during that time, so that we have conditions present in those centers from which we draw statistics which would naturally propagate the disease most rapidly and cause its spread most generally. It would be interesting if the statistics from large cities could be contrasted with equally correct statistics gathered from smaller cities and smaller places to ascertain whether the increase in prevalence and fatality of the disease is the same in the smaller communities as it is in the larger ones. He has an impression, but no facts sufficient to substantiate it, that it is the concentration of the people rather than the modes of life which renders them less resistant to disease which has caused an unusual spread of the malady and an unusual fatality. Destruction of the sputa of pneumonic patients should be done with as much thoroughness as it would be done in cases of tuberculosis, and it is infinitely easier to carry out because of the comparatively short duration of the malady.

DR. ARNOLD C. KLEBS stated that discussions with reference to pleuritic affections being tubercular have been going on for a long time. Osler, in 1893, examined the postmortem records of the Johns Hopkins Hospital, and found in 101 cases of acute pleurisy 32 cases that were tuberculous. The conclusion drawn by Osler at that time was that the proportion of tuberculous cases was not great. Not long ago Osler seems to have changed his opinion on that point, and believes that the proportion of tuberculous cases now is much larger. Dr. Klebs thought the modern view seems to be distinctly in favor of considering the majority of cases of acute pleurisy, with great thickening of the pleura, unattended with pneumonia induration, as being of tubercular origin.

DR. WILLIAM E. CASSELBERRY stated that it did not follow that a pleuritis occurring in a tuberculous patient is necessarily tubercular. At the same time, the two conditions are so closely conjoined, so far as prognosis and treatment are concerned, that we must recognize a tubercular pleuritis. He finds in looking over his records for the last ten or fifteen years that the majority of his cases of pleuritis, some of which were acute in character, are well and in good health to-day. One or two of them he recognized at the time as probably being tuberculous. He believes they have recovered from tubercular pleurisy. One of his cases was distinctly syphilitic; it is well recognized by authorities as being the result in some cases of secondary and tertiary syphilis, and such cases, under treatment, recovered.

DR. ARTHUR DEAN BEVAN said that post-operative pneumonia interested surgeons, and that some light had been thrown upon its etiology recently, since the introduction and more

extensive use of local anesthesia in operations. Surgeons only comparatively recently have recorded most of their post-operative pneumonia as being due to the irritation of the anesthetic, to the inspiration of food particles, or noxious material during anesthesia. Post-operative pneumonia frequently follows laparotomy, or more frequently operations upon the stomach, the bile tracts, and the structures in close contact with the diaphragm than upon other abdominal viscera. Since so much work is being done on the stomach, it has been found statistically and by individual experience that pneumonia is one of the most common causes of death after these operations. Many surgeons, in order to avoid this common cause of death, in these operations, have independently come to the same conclusion, that it would be well to do all the operations that can be done of this character under local instead of general anesthesia, with the idea that this would do away with the deaths from pneumonia following operations. After a considerable number of operations have been done under local anesthesia, however, it has been found in analyzing the statistics that even a greater proportion of cases die from operations of this character done under local than under general anesthesia.

DR. ALEXANDER HUGH FERGUSON favored lancing or puncturing the lung between the ribs when resolution should take place and failed to do so. If resolution of the affected lung could be hastened, it was worthy of trial. In the surgery of other organs this was being initiated during the last five or six years.

DR. E. H. OCHSNER said he had had the same experience as Dr. Bevan, although he confined his work entirely to general anesthetics at first, and found that lobar pneumonia was of common occurrence in cases which had undergone severe operations on the stomach, like resections of the pyloric end, gastro-enterostomies, etc. To overcome this difficulty he had found it advisable to have patients sit up soon after an operation, and it has been remarkable how much less frequent complications have been since. When he now performs a gastro-enterostomy the patient is allowed to sit up the next day in a semi-recumbent position, which is changed just as one would change the position of a patient with a fracture of the hip. In order to avoid this complication, and since he has adopted this method, the number of cases of pneumonia following major operations upon the stomach has been reduced very materially.

DR. BABCOCK, in closing, stated that with reference to the frequency and mortality of pneumonia within the last ten years, he felt sure that the statistics are not incorrect which show that this disease has been more than usually fatal in that period of time. Liebermeister, in Epstein's "Practice," says something on this point. He makes the statement that prior to two decades ago pronounced and typical cases of croupous pneumonia were much more prevalent than they are to-day; that the cases were more typical of genuine lobar pneumonia, and that within the last year or so, since the advent of the influenza bacillus, the pneumonias have changed a good deal in type, in that they have become atypical, and the increasing mortality of pneumonia within the last decade can perhaps be attributed to other things, as, for instance, mixed infection.

### Arthritis Deformans in a Child, with General Lymph-Gland Enlargement and Splenic Tumor.

DR. A. F. LEMKE read a paper on this subject. In May, 1900, a boy, 11 years of age, entered Cook County Hospital with a history of an illness dating back to his 3d year, and a condition principally of the joints and lymph glands; that for a time, at least, forced the essayist to suspend judgment as to the diagnosis. The joint involvement alone seemed easily accounted for, but the very marked enlargement of the glands, and particularly those glands associated with the joints most advanced in the disease process, or most acutely involved, was not easily explained. The axillary glands were so enlarged as to be visible from a distance, and the epitrochlear glands were as large as a hazelnut. This picture of universally enlarged glands made one consider seriously the possibility of a tubercular infection, and with a view of definitely determining this a large gland was removed from the axilla, used to inoculate a guinea-pig, and examined bacteriologically and histologically, as will be described later. The result of this inoculation was negative, and therefore the case was considered one of arthritis deformans, as it is occasionally seen in children, associated with lymph-gland enlargement and splenic tumor.

The general condition of the patient, after the ordinary tonic treatment, gradually improved, so that he was able to leave his bed and wheel himself about in a chair; but the condition of the joints, glands and spleen remained about the same, with the one exception that motion of the head was less painful. The blood state had also considerably improved. He was discharged Sept. 22, 1900, and not seen again until Nov. 1, 1901, when an examination revealed almost identically the same condition described above, except that the axillary lymph glands on the left side were slightly smaller. The course that the disease in this case has taken and the negative results of an attempt to prove the gland involvement tubercular warrant the essayist in grouping the case with nineteen or twenty others seen and described by George F. Still.

DR. FRANK X. WALLS said he had seen one typical case of arthritis deformans that occurred in a child 2 years of age, following closely an attack of measles. The smaller joints, as those of the hands and feet, were involved symmetrically. The case was under his observation for over a year, and during that time there did not seem to be any change in the course of the disease except that there were sometimes slight remissions and again a little improvement. The disease persisted from that time without any marked change. It did not respond to the antirheumatic, nor to tonic, treatment. There was general enlargement of the glands, but not to the extent mentioned in the case of Dr. Lempke. He saw another case in which there were not so many of the joints involved. This case followed an attack of scarlet fever. The larger joints were involved, two elbows, and one shoulder joint. In another case the spine was involved following closely an attack of gonorrhea. The cases he had seen seemed to point to a group of complications following the different infectious diseases in children.

DR. ROBERT B. PREBLE stated that an interesting phase of this disease was its etiology. Without making any effort at classification, he believes that it will become necessary to subdivide the cases that are now designated by the name arthritis deformans. However, for the present he thought the term arthritis deformans was a useful one to maintain. It committed the physician to nothing. So far as the etiology of the disease is concerned, there are three conspicuous theories. One of the theories is that of infection, and while he is perfectly aware that numerous observers have found in the joint fluids bacteria of various sorts, he is not inclined to believe that the cases are due to infection. His objection to that theory is mainly this, that the joint involvements are symmetrical. This is perhaps truer of the adult cases than in those which are observed in children; nevertheless, it is one of the conspicuous clinical features. It was difficult, in his opinion, to see how infection could bring about a symmetrical distribution.

DR. E. H. OCHSNER reported a case that had been under his observation for at least four and a half years, the etiology of which he thought was plain. A young lady developed arthritis deformans slowly, beginning to be ill in 1893. In 1897 she came under his care, with almost every joint in the body involved. She was so crippled that she could not walk, nor feed herself. She was absolutely helpless. Her weight when she came under his care was 87 pounds. After she had been under his care for some time, although it was difficult to elicit any information from members of the family or from the patient regarding the various functions of the body, he found that she was suffering badly from hemorrhoids, and that sometimes her bowels would not move for a week or ten days. He operated for the relief of the hemorrhoids, and was surprised at the condition in which he found the lower bowel. He had never seen such an accumulation of foul fecal matter. Although strong cathartics were given, the fecal matter resembled putty, and the state of decomposition was bad. The sphincters were thoroughly stretched, the hemorrhoids were

removed, and the woman, so far as the acute symptoms are concerned, has recovered. He has found it necessary to break up several of the joints, and to put the legs in a straight position. Patient is now able to walk and has gained 53 pounds in weight. In this case he thought the cause of the arthritis deformans was a constant auto-intoxication, and if the nature of the disease had been determined two or three years earlier than it was the woman might have been saved from the calamity in which she has fallen now.

DR. J. RAWSON PENNINGTON said that arthritis deformans is sometimes associated with rectal ulceration; Wallis, Cave, and others have reported such cases. He detailed two cases occurring in women.

DR. EDWARD F. WELLS pointed out that the essayist had presented the report of a case of a specific disease *sui generis;* that Dr. Still had likewise reported similar cases, but he did not think the paper should be loaded down by discussions regarding ordinary cases of arthritis deformans.

## Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

### PRESCRIPTION WRITING, X.

*(Continued from page 198.)*

#### Chemical Incompatibilities.

Chemical incompatibility may be apparent in three ways:

1. By precipitation or the formation of insoluble compounds.
2. By the evolution of gas.
3. In some instance by changes in the color of the mixture.

The largest class is included in the formation of insoluble compounds by precipitation. This precipitation takes place when two salts, combined, form an insoluble salt by the interchange of radicals. The most important incompatibilities are included in the following table as arranged alphabetically by M. L. Neff, for the convenience of the practitioner:

1. Acids or acid salts are incompatible with: alkalies and alkaline salts; alcohols (tinctures) and glycerin; hydrates and carbonates; glucosids; bases; relatively weak or volatile salts.

2. Alkalies are incompatible with: alkaloids and their salts; chloral; acids and their salts; relatively weak salts (halogens); metallic salts; calcium and magnesium salts.

3. Alkaloids and their salts with: alkalies; alkaline salts; halogen salts; tannic acid; phosphoric acid; boric acid and sodium borate; hydriodic acid; carbonic acid and the carbonates.

4 Arsenic is incompatible with: tannic acid; salts of metals, especially lead and silver; lime; magnesia.

5. Aqueous solutions are incompatible with: chloroform; metallic salts; essential and fixed oils; alcoholic tinctures; fluid extracts; resinous tinctures.

6. Hydrargyri chloridum mite (calomel) with: antipyrin; alkalies (lime water, etc.); potassium iodid; salts of iron and lead.

7. Carbonic acid and carbonates are incompatible with: iron salts; metallic salts (especially iron); salts of magnesium and calcium; acetic acid (syrupus scillæ).

8. Aqua calcis is incompatible with: salts of mercury (sometimes intentional); carbonates of alkalies; morphin and quinin salts.

9. Mucilages are incompatible with: alcohol and nitrous ether; iron; aqua plumbi; mineral acids.

10. Nitrous ether (sweet spirits of niter) is incompatible with: tincture guaiac; mucilages; antipyrin; Ferri sulphas; most of the carbonates.

11. Oxidizing substances, including the permanganates, chlorates, nitrates, etc., are incompatible with: charcoal; ammonium chlorid; tannic acid; sulphur; glycerin.

12. Phosphoric acid and the phosphates are incompatible with: alkaloids; metallic salts; salts of magnesium and calcium.

13. Tannic acid is incompatible with: alkaloids; metallic salts (especially iron and lead); arsenic; digitalis; albumin and gelatin.

14. Gentian preparations will produce a change of color in the mixture when combined with: iron salts; infusion of prunus virginianæ; infusio cinchonæ comp.; silver nitrate; lead salts.

The following prescriptions will illustrate some of the chemical incompatibles of the foregoing list, as given by Scoville and Thornton:

℞. Hydrargyri chloridi corros. ..... gr. i | .065
Potassii iodidi ..... ℥iv | 15
Aquæ, q. s. ad. ..... ℥iii | 90
M. Sig.: One teaspoonful after each meal in water.

In this prescription potassium iodid precipitates red mercuric iodid, which is redissolved in the excess of potassium iodid. This prescription is sometimes intentionally ordered.

℞. Hydrargyri chloridi corros. ..... gr. i | .065
Potassii iodidi ..... ℥ii | 7.50
Tinct. cinchonæ comp. ..... ℥iii | 90
M. Sig.: One teaspoonful three times a day.

In the above the potassio-mercuric iodid precipitates the alkaloids in the cinchona, demonstrating that alkaloids should never be combined with soluble iodids or corrosive sublimate which are powerful precipitants of the alkaloids.

℞. Hydrarg. chlorid. ..... gr. iii | .20
Tinct. cinchonæ co. ..... ℥vii | 210
Spts. ammon. arom. ..... ℥i | 30
M. Sig.: One teaspoonful as directed.

This is both ambiguous and incompatible. If the first ingredient means corrosive sublimate, ammoniated mercury will be formed; if calomel, black oxid of mercury will be formed.

℞. Pot. bromidi ..... ℥iii | 11.25
Chloralis hydratis ..... ℥ii | 7.50
Spts. ammon. arom. ..... ℥ss | 15
Syr. zingiberis ..... ℥i | 30
Aquæ ..... ℥iss | 45
M. Sig.: Take one teaspoonful and repeat in two hours.

The chloral is decomposed by the alkaline spirits of ammonia, chloroform being formed.

℞. Acidi nitro-muriatici dil.
Spts. ammoniæ arom. āā ..... ℥i | 3.75
M. Sig.: Two drops in water every four hours.

One of the above ingredients neutralizes the other.

℞. Argenti nitratis ..... gr. x | .65
Cocainæ hydrochlor ..... gr. xii | .75
Aquæ ..... ℥i | 30
Silver chlorid is precipitated if dispensed as written. This may be prevented by using cocain nitrate in place of the hydrochlorate.

℞. Syr. scillæ ..... ℥i | 30
Syr. senegæ ..... ℥ss | 15
Pot. bicarb. ..... gr. xx | 1.30
Tinct. opii ..... ℥ii | 7.50
Syrupi q. s. ad. ..... ℥iv | 120
M. Sig.: One teaspoonful four times a day in water.

The syrupus scillæ contains acetic acid, which neutralizes the ammonia in the syrupus senegæ and causes effervescence.

℞. Ammon. carb. ..... gr. xx | 1.30
Spts. etheris nitrosi ..... ℥i | 30
Tinct. ferri chloridi ..... ℥ii | 7.50
Liq. ammon. acetatis, q. s. ad. ..... ℥iv | 120
M. Sig.: One teaspoonful every three or four hours.

The ammonium carbonate is incompatible with the ferric chlorid and spirits of nitrous ether, unless care is observed in the compounding.

℞. Quininæ bisulph. ..... ℥ss | 1.88
Liq. ferri et ammon. acet. ..... ℥ii | 60
M. Sig.: One or two teaspoonfuls three times a day.

In this combination the insoluble quinin acetate is precipitated.

*(To be continued.)*

### Lactic Acid in Alopecia.

Balzer, in *British Medical Journal*, recommends the following lotion in the treatment of alopecia: After cutting the hair close to the scalp and cleansing with soap and water the following should be applied:

| | | | |
|---|---|---|---|
| R. | Hydrargyri chloridi corros | gr. iii | 20 |
| | Acidi acetici | gr. xv | 1 |
| | Alcoholis | ʒiv | 120 |
| | Etheris | | |
| | Sol. lavendulæ (alcoholic) āā | ʒii | 60 |

M. Sig.: Apply locally once a day.

After drying, the head is rubbed with lactic acid, about 30 per cent.

### Improved Method of Introducing the Stomach Tube.

It is exceedingly difficult to introduce the stomach tube for the first time; and the effort is not infrequently abandoned. Crenshaw, in *Med. Rec.*, suggests a new method of overcoming the nausea and gagging, by freezing two or three inches of the end of the tube in ethyl chlorid. When it is introduced it causes anesthesia of the mucous membrane with which it comes in contact. It can, he claims, in this way, be introduced very easily for the first time. When it reaches the stomach the temperature has been sufficiently raised to cause no harm.

### Treatment of Passive Congestion of the Liver Due to an Incompetent Heart.

Dr. Bommier, as stated in *N. Y. Med. Jour.*, recommends, in these passive congestions, cardiac tonics such as digitalis, caffein, spartein and strophanthus. The following combination is also employed by him in such conditions:

| | | | |
|---|---|---|---|
| R. | Ext. ergotæ (aqueous) | ʒi | 3 75 |
| | Pulv. scillæ | gr. xlv | 3 |
| | Hydrarg. chloridi mitis | ʒss | 1 88 |
| | Pulv. digitalis | gr. xv | 1 |

M. Ft. pilulæ No. xl. Sig.: One pill three times a day.

### Treatment of Scarlatinal Nephritis with Hot Water Irrigations.

Kerly, as noted in *Ther. Gazette*, recommends irrigation of the colon with hot water as the best means of restoring the functions of the kidney in scarlatinal nephritis. It should be employed whenever the quantity of urine is diminished or when convulsions occur. In a child aged 3 years, 500 to 750 c.c. of water at a temperature of 43 C. should be introduced by means of a rectal tube passed into the rectum for a distance of 2.5 centimeters. If the water is returned at once it must be repeated and irrigation continued every six or eight hours. After three or four administrations the kidneys commence to act as a rule and abundant diuresis takes place.

## Medicolegal.

**Promise of Third Party to Pay Doctor's Bill.**—The recent Nebraska case of Swigart vs. Gentert was brought to recover from the party sued for services rendered as physician and surgeon to his daughter, who was a married woman, and was at the time living with her husband. The testimony of the party sued was: "That plaintiff [the doctor] called me out. He set in buggy, and I walked up to him. Then he told me, 'Your daughter is pretty sick.' I was a little scared, you know, so he says, 'I guess I get her through all right.' After that he asked me, 'Who is going to pay that?' I told him, 'I help you see you get it,' but I never promised anybody." The jury apparently accepted this version of the transaction, and the Supreme Court of Nebraska holds that the promise stated was one clearly within the statute of frauds, that is to say, one to answer for the debt of another, and one required to be in writing to bind the party sued. His promise was twofold—First, that he would help the doctor to collect the bill; and, second, that he would see that the doctor received his pay. The first part of the promise could not be enforced because of its indefiniteness; and the second part was, by its very terms, a promise to answer for the default of the parties who would be primarily liable for the services to be rendered. The fact that the doctor would not render the services upon the responsibility of the daughter and her husband, without the additional promise of the party sued to see that the doctor received his pay, the court holds, was not of itself sufficient to take the promise out of the statute of frauds, in other words, to relieve it of the necessity, under the statute, of being in writing to be binding. Furthermore, the court holds that testimony that the doctor never presented a bill for the services to the party sued was competent, and properly admitted, it being proper to be taken into consideration, with the other evidence in the case, in determining to whom credit was extended. Nor does it consider erroneous an instruction in which the jury was told that if the party sued advanced to the doctor $20 for and on behalf of his son-in-law, after the services were rendered, such act would not be a confession nor an admission of liability on the part of the party sued for the remainder of the bill.

**Examining Physician's Statement—Employing Physician.**—The Supreme Court of Michigan says, in the case of Rhode vs. the Metropolitan Life Insurance Company, that it does not appear that the question was ever before presented to it, in just the form that it was here, as to the admissibility in evidence, as against the insurance company, of the statement of the examining physician, made at the time of the examination of the applicant for insurance. But it has no doubt, on principle, that such testimony is competent evidence against the assured. The physician, it then proceeds to say, is a representative of the insurance company. He is employed for the very purpose of determining the physical condition of the applicant. His examination is supposed to be made with the utmost care, and with due regard to the interests of his employer. And the court declares that it can conceive of no reason why his statements, made at the time, should not be received as competent evidence, that is, as against the company. It does not mean to intimate, however, that such testimony is conclusive, but that it is receivable, as bearing upon the question of the condition of health of the applicant at the time the examination was made, it thinks is clear. Another point in this case was with reference to the effect against him of the statement of the assured, contained in his application, that he had not been under the care of a physician within two years. In certain previous cases the court has held that merely calling upon a physician for some temporary indisposition, which does not tend to weaken or undermine the condition of the assured, would be no breach of the warranty. But, in each of those cases, it now points out, the party suing offered affirmative testimony to show that the treatment of the physician was for some temporary indisposition. Neither of the cases held that it is not sufficient, prima facie, to show a breach of a warranty such as that involved in this case, to prove that the assured had, in fact, been attended by a physician. Indeed, to so hold, the court insists, would be doing violence to the very terms of the stipulation. So, when, in this case, the company was prepared to show that the assured had, within two years prior to the making of his application, been attended by one or more physicians, this, the court holds, was prima facie a breach of his contract, and the burden would be upon the party suing to recover the insurance to show that the attendance was not for any ailment which tended to weaken or undermine his health seriously.

**Furnishing Physician—Power of Director—Not Expert.**—The Supreme Court of Vermont says, in the personal injury case of Sias vs. the Consolidated Lighting Company, that it thinks the mere fact that an employer furnishes a physician or nurse for one who meets with a disabling accident in his services ought not to be received as evidence tending to establish his liability. It must be the impulse of every humane employer to provide this assistance for a disabled workman without means, and the rule of evidence ought to be such as to permit his doing it without danger to himself. Such an act should be treated as a humane recognition of an existing necessity, and not as an admission of the justice of a claim not then asserted. Then, a physician called as a witness was permitted to testify that when he was with the party suing about a week after his injury, another physician, who was a director in the corporation sued, called, and, on leaving, told him to go on

with the case, in consequence of which he sent this bill to the company, the director having also stated at the time that he called to see the young man in the interest of the company in place of the manager. But the Supreme Court holds that the admission of this testimony was erroneous for the reason above stated, and also because it did not appear that the action of the director was authorized by the company. The mere fact that he was a director, the court holds, did not authorize him to act for the company in this manner. A director of a corporation can bind the company by his separate action only so far as he may be authorized to do so. In undertaking to act singly for the company he must be looked upon as an ordinary agent, and the rules of evidence applicable in cases of agency must be applied. If there be matters which it is prima facie the duty of a director to attend to, this cannot be held to be one of them, for it was not within the scope of ordinary corporate duty. If it was a matter in which the manager could bind the corporation, the declaration of the director could not be taken as evidence that he was authorized to act in place of the manager. Again, the court holds that it was error to admit, the evidence of the witness who took the x-ray photographs of the injured joint, explaining that the reason why there were no light lines running across at the foot of the perpendicular bones of the leg was because there was a fracture close to the ankle joint, which afterwards filled up with cartilage. The witness subsequently testified that in the experience he had had in photographing ankle joints in their natural condition the light lines appeared between the bones, and upon further inquiry that he had taken some 1600 pictures of joints in different parts of the body, and that he considered himself qualified to say whether the white line would appear in a joint in normal condition. This, however, the court holds, did not make him an expert as to the character of the injury and the subsequent process to which this difference in the photograph was due.

## Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

### AMERICAN.

#### American Medicine (Philadelphia), January 11.

1 *The Operative Cure of Procidentia Uteri. Charles P. Noble.
2 *Gonorrheal Vulvovaginitis in Young Children. Reuben Peterson.
3 Removal from Bladder, Through the Cystoscope, of a Needle Which Had Been Swallowed Nine Years Before. Hugh H. Young.
4 *The Impropriety of Cesarean Section in Placenta Previa, with Remarks on a Rational Method of Treatment. Hugo Ehrenfest.
5 *The Effects of Ventrofixation and of Ventral Suspension on Subsequent Pregnancy and Labor, with Report of a Case. Arthur C. Jacobson.
6 The True Value of Local Treatment in Gynecic Practice. Frank C. Hammond.
7 Congenital Malformation of the Vagina, with Report of Cases. Wm. Edgar Darnall.
8 Dystocia Following Ventrofixation. Fred H. Bloomhardt.

#### Medical News (N. Y.), January 11.

9 *Chronic Myocarditis; Morbid Anatomy and Physical Signs. J. H. Musser.
10 *Prolonged Medication, with Special Reference to Digitalis. Abraham Jacobi.
11 *Heart Strain: Its Result and Treatment. J. M. G. Carter.
12 On the Action of Digitalis. Arthur R. Cushny.
13 *Bacteriologic Diagnosis of Typhoid Fever. Henry A. Higley.

#### New York Medical Journal, January 11.

14 *The Operative Treatment of Traumatic Intracranial Lesions. Charles Phelps.
15 *On the Feasibility and Management of a Hygienic Cure of Pulmonary Tuberculosis Outside of Closed Sanatoria. (Concluded.) Charles L. Minor.
16 *The Plastic Use of the Uterus in Cystocele Operations. Joseph Brettauer.
17 Inflammation and Sclerosis. Clarence L. Kilbourn.
18 What Is Your Method of Preventing Laceration of the Perineum in Labor? The Importance of Preparatory Treatment. William F. Barclay.
19 The Advantages of Episiotomy. Stewart Lewis.
20 Guide the Mechanism. Harold D. Cochrane.
21 Avoid Manual Dilatation. Victor E. Neesen.
22 Morphin and Chloroform as Adjuvants. Robert E. Coughlin.
23 Retard the Delivery. Thomas C. Duncan.

#### Philadelphia Medical Journal, January 11.

24 *The Treatment of Inoperable Tumors. Conrad George, Jr.
25 *Duration of Immunity by Diphtheria Antitoxin. Henry D. Jump.
26 *Note on the Treatment of Follicular Tonsillitis. Charles W. Dulles.
27 *Some Aural Complications of Influenza. S. MacCuen Smith.
28 Acquired Pulmonary Lues. Otto Lerch.
29 Some Experiments on the Formation of Bile Pigment and Bile Acids; a Contribution to Our Knowledge of Icterus. (To be continued.) Alfred C. Crofton.

#### Medical Record (N. Y.), January 11.

30 On the Progress of Public Health Organizations in the United States. Stephen Smith.
31 *Official and Private Phthisiophobia. S. A. Knopf.
32 *A Contribution to the Pathogenesis of Narcolepsy and Other Forms of Morbid Sleepiness. Heinrich Stern.
33 *Are the Tonsils to Be Regarded as Normal Physiologic Organs of the Body. Francke H. Bosworth.

#### Boston Medical and Surgical Journal, January 9.

34 *Remarks on the Diagnosis Between Acute Appendicitis and Some Atypical Cases of Typhoid Fever. Maurice H. Richardson.
35 *Unnoticed Fractures in Children. F. J. Cotton and R. H. Vose.
36 *Notes on X-Light. William Rollins.
37 Case of Attempted Criminal Abortion in Extrauterine Fetation. W. D. Swan.
38 Report of Cases from the Second Surgical Service of the Children's Hospital, Boston. H. L. Burrell, R. W. Lovett, and J. E. Goldthwait.

#### Cincinnati Lancet-Clinic, January 11.

39 Acute Ascending Spinal Paralysis. John S. Harris.
40 *Consumption. George J. Monroe.

#### St. Louis Medical Review, January 11.

41 *Surgical Interference in Hepatic Cirrhosis. T. C. Witherspoon.
42 Valedictory Address Before the St. Louis Medical Society. L. E. Newman.

#### American Practitioner and News (Louisville, Ky.), November 15.

43 Plastic Surgery of the Face. M. F. Coomes.
44 Stricture of the Esophagus. Edwin Walker.
45 A Plan of Campaign. W. J. J. Paris.
46 Puerperal Convulsions. T. J. Townsend.
47 The Use of Normal Saline Solution. C. H. Todd.
48 Acute Orchitis. W. H. Hardesty.

#### Northwestern Lancet (Minneapolis), January 1.

49 The Stereoscopic Photograph, the Beneficial Effect on the Eyes from the Use of the Stereoscope. A. Edward Davis.
50 Post-Diphtheric Paralysis. G. D. Haggard.
51 *The Surgical Significance of Jaundice. William J. Mayo.
52 Dermatitis Exfoliativa Following an Abdominal Operation. A. R. Brackett.
53 Atypical Ectopic Gestation. A. W. Abbott.

#### Virginia Medical Semi-Monthly (Richmond), December 13, 1901.

54 Gastro-Intestinal Therapy. J. N. Upshur.
55 Treatment of Insomnia by Hedonal. G. C. H. Meier.
56 Invagination of Ileum following Appendicitis in a Child Aged 4 Months and 27 Days. Joseph S. Rardin.
57 Catalepsy Due to Ingestion of Muscadines. Lucien Lofton.

#### Richmond Journal of Practice, December, 1901.

58 Typhoid Perforation: Its Frequency, Prognosis, Diagnosis and Treatment. Hugh M. Taylor.
59 Loss of Base of Bladder, Plastic Operation. Ovarian Cyst, with Fibroid of Uterus. Southgate Leigh.
60 Three Cases of Gunshot Wounds Illustrating Emergency Surgery. L. G. Richards.
61 Angina Pectoris. Marvin E. Nuckols.

#### Annals of Surgery (Philadelphia), January.

62 *The Cause of "Stitch Abscesses" and Their Prevention. A. Ernest Maylard.
63 Report of Six Cases of Penetrating Wounds of the Abdomen Submitted to Abdominal Section, with Statistical Tables of 162 Cases Thus Operated on at the Charity Hospital in New Orleans, La. E. D. Fenner.
64 The Technique of Gall-Bladder and Duct Operations. Samuel J. Mixter.
65 Intussusception of Meckel's Diverticulum. Jonathan M. Wainwright.
66 *Mechanical Versus Suture Methods for Intestinal Approximation. Jacob Frank.
67 *The Symptomatology, Diagnosis and Treatment of Carcinoma of the Cecum, with a Report of Two Cases. Charles Greene Cumston and Albert Vanderveer.
68 Elbow Fractures in Children. Frederic J. Cotton.

#### Canadian Journal of Medicine and Surgery (Toronto), January.

69 National Physical Development. J. N. Hutchison.
70 Address to Graduating Class of the Training School for Nurses, Toronto General Hospital. A. Primrose.

American Journal of the Medical Sciences (Philadelphia), January.

71 Cases Illustrating Ureteral Surgery. Henry C. Coe.
72 Clinical History of a Case of Blindness from Congenital Deformity of the Occiput. Charles A. Oliver.
73 Double Hydrocele in an Infant—Prolapsus of the Rectum—A Case of Osteomyelitis of the Tibia—Necrosis of the Lower Jaw Following Measles—A Case of Knock-knee—Cellulitis of the Penis and Scrotum. Henry R. Wharton.
74 Impacted Calculus in the Urethra in Children; A Report of Two Cases. John H. Jopson.
75 A Case of Chronic Lymphatic Leukemia in an Infant. J. Alison Scott.
76 *Uncinariosis (Ankylostomiasis); A Further Report of a Case, with Notes upon the Autopsy. Thomas A. Claytor.
77 Laparotomy for Perforation in Typhoid Fever. C. E. Briggs.
78 Two Cases of Typhoid Fever Complicated by Noma. Joseph Sailer.
79 Thyroiditis Complicating Typhoid Fever. William Egbert Robertson.
80 *Cause of Death in Aneurysms of the Thoracic Aorta Which Do Not Rupture; Report of Five Cases. H. D. Arnold.
81 *The Association of Pulmonary Tuberculosis, with Both Primary and Secondary Endocarditis, and the Effect of Valvular Disease upon Lung Tuberculosis. James M. Anders.
82 Report of a Case of Dementia Precox. William R. Dunton, Jr.
83 On Sarcoma of the Radix Linguæ, with Report of a Case. George E. Shambaugh.
84 *A Review of Echinococcus Disease in North America. Irving P. Lyon.
85 *Recent Views of the Origin and Nature of Herpes Zoster. Arthur Van Harlingen.
86 Some Experiments on the Intermediary Circulation of the Bile Acids: A Contribution to Our Knowledge of Icterus. Alfred C. Croftan.

Denver Medical Times, November, 1901.

87 Home Treatment of Insanity. Hubert Work.
88 A Comparative Climatic Study of the Arid and Semi-tropic Southwest, and Its Relations to Tuberculosis. Wm. Winthrop Betts.
89 History of the Colorado Fuel and Iron Company's Hospital. R. W. Corwin.

American Journal of Insanity (Baltimore), October, 1901.

90 Dementia Precox. J. Christian.
91 *Is Legal Recognition of Graduated Responsibility Practicable? A. B. Richardson.
92 Abnormal Brain Development. H. C. Eyman.
93 *Examination of the Stomach Contents in the Insane. Florence E. Allen.
94 *Notes on the Wills of Lunatics, with Special Reference to the Law of Maryland. William H. Buckler.
95 *Psychic Treatment. Edward C. Runge.
96 *The Insane Criminal. Butler Metzger.

Medical Herald (St. Joseph, Mo.), December, 1901.

97 Fibromata Mollusca. John D. McDonald.
98 Vesico-vaginal Fistula. J. Cameron Anderson.
99 Lobar or Croupous Pneumonia. R. W. Stouffer.
100 General Practice and Minor Surgery. W. V. Loftus.

Archives of Neurology and Psychopathology, iii, 3.

101 *On the Evidence of the Golgi Methods for the Theory of Neuron Retraction. Richard Weil and Robert Frank.
102 *The Retraction Theory from a Psychical Standpoint. William A. White.
103 *Identification of the Insane. Henry Lyle Winter and William Steinach.
104 Recent Researches on the Chemistry of the Proteid Molecule. P. A. Levene.
105 A Case of Weil's Disease with Delirium Grave, with a Brief Experimental Study of Infective Icterus. Harlow Brooks.
106 *The Cephalic Index. Henry L. Winter.
107 *On the Arrangement and Function of the Cell Groups of the Sacral Region of the Spinal Cord in Man. B. Onuf.

Canadian Practitioner and Review (Toronto), December, 1901.

108 President's Address: "The Passing of the Surgeon" in Toronto. F. N. G. Starr.
109 Value of Examinations of Throat-Swabs as a Test of Freedom from Diphtheria. John A. Amyot.
110 The Treatment of Abscesses in Tubercular Bone Lesions. Clarence L. Starr.

Journal of Nervous and Mental Diseases (Nyack, N. Y.), December, 1901.

111 *On Tumors Involving the Corpus Callosum. James J. Putnam and Edward R. Williams.

Columbus Medical Journal, December, 1901.

112 Association for the Prevention of Tuberculosis. C. O. Probst.
113 Some Recent Views on the Causation of Cancer. J. H. J. Upham.
114 External Urethrotomy Without a Guide and Suprapubic Cystotomy for Vesical Calculus. Earl M. Gilliam.
115 "Enuresis." J. M. Dunham.

The Ophthalmic Record (Chicago), December, 1901.

116 Report of Case of Penetrating Wound of the Orbital Cavity with Partial Detachment of Retina. G. A. Whitledge.
117 Circular Rupture of the Iris. O. A. Griffin.
118 Another Case of Hyperopia and Conical Cornea. James W. Dunn.
119 *The Diagnosis of Ocular Paralyses. Alexander Duane.
120 Conical Cornea with Hyperopic Refraction. William E. Bruner.
121 Noma of the Eyelids in an Infant. F. W. Marlow.

Medical Council (Philadelphia), January.

122 Purpura. Frank W. Garber.
123 Dietary Changes in Infants and Children. W. L. Johnson.
124 Lobar Pneumonia. M. V. Leof.
125 Conjunctivitis Neonatorum. T. W. Moore.
126 Pointers on the Male Urethra. Lester Keller.
127 Disorders of the Sexual Function in Man—Syphilis. A. H. P. Leuf.
128 One Phase of Cystitis in the Female. A. G. Servoss.
129 Fibroid Tumors of the Helix After Piercing for Earrings. A. Schirman.
130 Eye Troubles Due to Affections of the Teeth. Alice Jarvis.
131 Fecal Accumulation in the Lower Rectum. Ernest Hall.

The Medicus (Frederick, Md.), November, 1901.

132 The Treatment of Pneumonia in Children. Georgina Grothan.
133 *The Advantages of Civil Service Principles in the Conduct of State Hospitals for the Insane. Gershom H. Hill.

Toledo Medical and Surgical Reporter, January.

134 Intestinal Anastomosis with Murphy Button. Charles N. Smith.
135 Mistakes (in Practice). J. D. Ely.
136 A Study of the Anti-Rheumatic and Anti-Neuralgic Action of Aspirin. E. Rybiczka.

Medical Standard (Chicago), January.

137 The Commoner Diseases of the Eye; How to Detect and How to Treat Them. Casey A. Wood and Thomas A. Woodruff.
138 Splashing Sound. A. Rose.
139 A Surgical Clinic (Aneurysm of the Innominate Artery, etc.). Christian Fenger.
140 The Treatment of Typhoid Fever. J. T. Moore.

Texas Medical News (Austin), December, 1901.

141 *The Diagnostic and Therapeutic Uses of Tuberculin, with Report of a Case of Early Meningeal Tuberculosis. Boyd Cornick.
142 *The Record of Yellow Fever in the United States for the Past Does Not Sustain the Mosquito Theory. J. P. Oliver.
143 Typhoid or Enteric Fever. C. C. Foster.
144 Forceps Operation in Obstetrics. A. J. Krueger.

Carolina Medical Journal (Charlotte, N. C.), December, 1901.

145 The Etiology and Treatment of Summer Diarrhea. F. Julian Carroll.
146 Angina Pectoris. Marion E. Nuckols.

Georgia Journal of Medicine and Surgery (Savannah), December, 1901.

147 *Typhoid Perforation, Its Frequency, Prognosis, Diagnosis and Treatment. Hugh M. Taylor.
148 A Report of Two Cases of "Eosinophilia," with Remarks upon the Eosinophile Cells of the Blood. Jno. R. Hicks.
149 The Advantages of the X-Ray in the Treatment as Well as the Diagnosis of Certain Surgical Cases. M. F. Carson.
150 *The Antiseptic and Eliminative Treatment of Typhoid Fever. T. Virgil Hubbard.

Medical Times (N. Y.), January.

151 Angina Pectoris. Egbert G. Rankin.
152 Treatment of Typhoid Fever by the Brand Plan,, with an Example. Louis F. Bishop.
153 Treating a Carbuncle. William Wormley.
154 Acute Delirium Following the Grippe. F. C. Simpson.

Southern Practitioner (Nashville, Tenn.), January.

155 Complications of Fractures and Their Management. Duncan Eve.
156 Myomectomy upon the Pregnant Uterus, with Report of a Case. R. E. Fort.
157 The Employment of Solution Adrenalin Chlorid as a Hemostatic in Surgical Procedures. Charles F. Sauter.

## FOREIGN.

British Medical Journal (London), January 4.

1 *Epilepsy. William H. Broadbent.
2 *A Brief History of the Operations Practiced for Cancer of the Breast. William M. Banks.
3 *Clinical Lecture on Oophorectomy in the Treatment of Cancer of the Breast. H. T. Butlin.
4 Accidental Removal of Auricle by Midwifery Forceps, and Successful Application of Artificial Auricle. James Erskine.
5 *Theories of Inheritance. Charles Mercier.

The Lancet (London), January 4.

6 *The Causes and Significance of Phantom Tumors. William H. Bennett.
7 The General Principles of Treatment of Diseases of the Skin. Willmott Evans.
8 *Seventeen Cases Operated on for So-called "Internal Derangement of the Knee-joint." Arthur E. J. Barker.
9 *On the Etiology and Pathology of Survy. George Lamb.
10 Abdominal Pan-Hysterectomy for Cancer of the Uterus, with Notes of Two Cases. Arthur H. N. Lewers.
11 On Two Contrasted Cases of Hysterectomy; One During Pregnancy, the Other in Puerpery. J. Bland-Sutton.
12 The Disappearance of the Addiment from Anti-microbic Sera. E. W. Ainley Walker.
13 Beef-Worm in the Orbital Cavity. Thomas W. F. Gann.

Medical Press and Circular (London), January 4.

14 *Glycosuria and Insanity. W. R. Dawson.
15 Hemichorea and Parotitis Complicating a Case of Diabetes. George Peacocke.

## AMERICAN.

1. **Procidentia Uteri.**—Noble's method in the average case is to curette, which is only of special value in hypertrophy of the uterus with hyperplasia of the endometrium; he follows this by amputation of the cervix, which lessens the weight of the uterus and promotes involution. He makes a resection of the anterior vaginal wall, which serves to remove the redundant or overstretched walls; he next performs perineorraphy, and finally suspensio uteri. In the less severe cases a smaller series of operations may be performed. He gives the details of each of the operations and tabulates his experiences.

2. **Gonorrheal Vulvovaginitis in Children.**—The conclusions of Peterson's article are: 1. Vulvovaginitis in the young girl may be divided into simple and gonorrheal. 2. Simple catarrhal vaginitis is due, in a large majority of cases, to lack of cleanliness, and subsides when the proper treatment is instituted. 3. Gonorrheal vulvovaginitis in young children is more common than is generally supposed. While more frequently met with amid unhygienic surroundings in large cities, it is by no means a rarity in the less thickly settled districts. 4. Gonorrheal disease is more frequent below the age of 6; it is more common in girls than in boys. 5. Specific vulvovaginitis in the large majority of cases arises from actual contact of the patient with some infected person. A study of the reported epidemics, however, shows that the disease may be spread by other means, such as a common bath, towels, bed-linen, etc. 6. The ordinary staining methods will prove satisfactory in making a differential diagnosis between specific and other forms of vulvovaginitis. 7. The parts affected in their order of frequency are the labia, urethra, vagina and cervix; the vagina is more frequently affected in the child than in the adult, owing to the character of its epithelium. 8. The tubes, ovaries, and peritoneum may be involved in the pathologic process. It is not improbable that certain diseases of adult life may be ascribed to gonorrheal infection in infancy. 9. Purulent ophthalmia and rheumatism are quite frequent complications. The strictest prophylaxis should be observed in order to avoid the former. 10. The treatment of specific vulvovaginitis must be energetic to be of any avail. Under certain conditions the vaginal orifice should be widely dilated and the vaginal pus cavity properly drained.

4. **Cesarean Section in Placenta Previa.**—Ehrenfest argues against the propriety of Cesarean section in placenta previa, reviewing the arguments and reporting cases. His conclusions are as follows: 1. The results of Cesarean section at large are worse than is usually stated. 2. In contradistinction, the results obtained by the usual treatment of placenta previa are by far better than is generally believed. 3. There is every reason to expect that the results of Cesarean section performed in cases of placenta previa will be much worse than those of the classic operation. 4. If Cesarean section as a means of treating placenta previa is contemplated, Porro's radical operation, with extirpation of the uterus, according to the indications for this operation, may have to be performed in the majority of cases. 5. The treatment of placenta previa by means of Cesarean section does not seem to hold out promise of considerably augmenting the number of children saved. 6. A careful study of the published statistics shows that the most promising treatment of placenta previa is the following: From a careful study of the statistics the author finds that the best treatment of placenta previa is in cases of deep-seated previa, where late appearing hemorrhages can often be stopped by accelerating the progress of the labor, by artificial rupture of the membrane. If the bleeding continues, however, while the head is low down, a tight tamponade of the vagina is indicated, fixing the bleeding edge of the placenta between the fetus and the tampon. In this the tampon does not push out the placenta from the uterus, as occurs when the presenting parts are not fixed in the pelvis. After awhile the tamponade should be removed in order not to retard the progress of the child, and if the head is deep enough and the canal fully dilated the forceps can be applied. In cases of abnormal position or perforation of the cord, bipolar version, according to Braxton Hicks, should be performed as soon as two fingers can be passed into the cervical canal. This is possible usually in the case of placenta marginalis, and the turned fetus can be pulled down until the knee can be seen. In this case the thigh and breech act as a tamponade from above. Further expulsion should be left to the natural powers of the uterus and forced extraction after the version has been performed should not be undertaken. A very deliberate and careful extraction may be attempted in some cases, but only if there is a chance to save the life of the fetus. In case of central previa, the first hemorrhage often sets in during pregnancy or in the early stages. Sometimes the break can be checked by keeping the patient confined to bed and applying douches of cold water, but if these fail, abortion should be induced immediately, opening the canal with the Hegar's dilator until a colpeurynter can be introduced, following with a 2 per cent. solution of lysol, and expulsion by uterine contraction awaited. Light, careful traction at the free end of the colpeurynter is permissible, which is best done by means of a 2-lb. weight. Immediately after the bag is passed through the cervix, bipolar version is performed. In order to rupture the membranes an attempt should be made to reach the end of the placenta, but a thorough search for it is dangerous. If the membranes can be reached they are ruptured and the foot pulled through the opening. If they can not be reached easily the fingers penetrate the placental tissue and the foot is brought down through this hole. If at the time when the hemorrhage begins the cervix allows of the introduction of two fingers a dilatation is not necessary, and bipolar version is immediately performed. Further treatment is the same as described for marginal previa. In central cases even a careful manual extraction should not be attempted, as in these cases the lower segment of the uterus here is very friable and the danger of rupture imminent. If version has been made and the cervix not been injured, the hemorrhage is always checked immediately. None of these procedures are difficult or require special measures.

5. **Ventrofixation and Its Influence on Labor.**—The points made by Jacobson are that serious difficulties in labor have occurred only when the methods of operating have produced widespread and dense attachment of the fundus to the abdominal wall. He thinks shortening of the round ligaments as in the Alexander operation, and especially the Goldspohn modification, are better for subsequent pregnancies than are other methods. Apparently from the statistics the operations of suspension and ventrofixation reduce fertility. This can not be positively stated. They have no special tendency to induce abortion. As regards practical obstetric conclusions, plastics failing, it would seem that suspensio uteri, possibly after the Kelly method or one of the other methods such as Alexander's, is infinitely preferable to permanent ventrofixation, except, of course, in elderly women or those whose ovaries have been removed. From an obstetric standpoint, ventrofixation may be considered as occupying an intermediate plane between vaginal fixation and ventral suspension. As a rule pregnancy and labor are uncomplicated, between 85 and 90 per cent. have been absolutely normal; in 2 per cent. delivery has been impossible by the natural method. In the remaining cases the difficulties have been overcome by ordinary obstetric resources. We have,

withstanding, some good obstetric reasons for distrusting e operation of ventrosuspension in child-bearing women.

9. **Chronic Myocarditis.**—From a review of the subject, in-ding its various types and a report of several cases, Musser ncludes as follows: "We may say, then, that myocarditis may ist, 1, without definite physical signs—a rare occurrence I lieve; 2, with signs of moderate cardiac hypertrophy, marked duplication being the only physical sign and of significance ly when coupled with signs of endarteritis; 3, with physical ns of dilatation; 4, with physical signs of fatty degenera-n; 5, with the physical signs mentioned, which in the aggre-te are of great significance."

10. **Digitalis.**—Jacobi calls attention to the fact that he s long urged the use of digitalis in small doses for various rdiac conditions and tuberculous disease, giving from 4 to 6 ains daily or its equivalent, given for weeks or months or en years without any hesitation. He finds no cumulative tion in the use of the drug in this form. The patients do t become accustomed to its effect so as to reduce its efficiency. e indications for the use of digitalis, according to this thod, are insufficiency of the heart muscle and incompetency the mitral valve. Chronic myocarditis is no contra-indica-n and aortic insufficiency when incipient or moderate and not using inconvenience is also perfectly compatible with this dication. In advanced cases where compensation is much sturbed and considerable peripheral venous obstruction exists en digitalis will not suffice to restore the equilibrium between e action of the heart and the distended capillary circulation. e also mentions as of value small doses of digitalis in cir-osis.

11. **Heart Strain.**—Carter's article reviews the subject of art strain, giving the symptoms, treatment, etc. It can not abstracted in detail.

13. **Bacteriologic Diagnosis of Typhoid Fever.**—Higley tices the different tests of typhoid fever, the Widal reaction d His' isolation method. The question is: Which is the best d in the diagnosis of typhoid? In clinical practice patients ith typhoid present themselves at various periods of the dis-se. They may be classed, however, in two divisions: 1. atients in the second, third and later weeks of the disease, in hom the characteristic symptoms have been developed and here something else than clinical symptoms must be called for the diagnosis. 2. Patients in the first week of the dis-se where characteristic symptoms are not yet developed and here we have to make an early and sure diagnosis. In the rst class of cases, except from the beginning of the fourth eek on he prefers the isolation method. From the fourth eek on he prefers the Widal reaction. The His method is referred in the earlier period because it is the best, surest and asier method. In late cases isolation tests are useless, and he most favorable method is the Widal reaction and the leuco-te count. If we get positive results the better the diagnosis; not, we have to wait. The bacteriologic examination of the rine he considers of little value from the diagnostic stand-oint, excepting in rare cases which are not seen until the con-alescence is nearly established. The isolation of bacteria from he blood has difficulties, requiring at least 5 c.c. and the dis-omfort of the patient in obtaining this is a serious obstacle in rivate practice. He thinks it should be restricted to cases here other methods of bacteriologic diagnosis have been tried ithout avail.

14. **Traumatic Intracranial Lesions.**—Phelps advocates ntiseptic exploratory craniotomy where there is any reason o suspect depressed fracture. For intracranial hemorrhages e considers the justifiable use of operation is limited, and in-asion of the cranial cavity without definite indications un-ustified. The justifiable conditions of head injuries he says ay be summarized as properly general in depressed cranial ractures, frequent in comparatively uncomplicated epidural emorrhages, and exceptional in subdural lesions, whether of he brain or of the pio-arachnoid membrane. The question of peration will often be raised and definite decision entail great esponsibility, but the accidents of too early or unwarranted invasion may outnumber those where ultra-conservatism has led to fatal neglect.

15. **Tuberculosis.**—Minor concludes his article, giving explicit directions as to sputum disposition and the keeping of the case record by the patient himself; he believes that this is beneficial. In all but severe cases a trained nurse can be dispensed with. All the paraphernalia he recommends are a reclining chair capable of being put into a horizontal position, good rugs, woolen underwear, and sputum cup. A tin bathtub and bath thermometer are all that is necessary for the hydrotherapeutic treatment. The more intelligent the patient the less frequently will the physician need to be consulted; generally from one to two visits a week will be sufficient. The amount of rest is a matter for judgment as is also that of exercise; the latter should begin moderately. The patient should not be left to his own judgment in the matter until he is able to walk for an hour or more. Minor believes in pulmonary gymnastics as being of value. Other matters mentioned are amusements, worry, which should be avoided, of course, hardening of the body by hydrotherapy, etc., and symptomatic medical treatment. He concludes with a day's routine for a consumptive case and a bibliography.

16. **Cystocele.**—Brettauer advocates Freud's method of treating defects in the posterior wall of the bladder by plastic use of the uterus, and proceeds in the following way: After the usual preparatory measures, an incision is made through the anterior vaginal wall, from the urethra near its orifice to the cervix; two flaps are bluntly dissected, the bladder loosened and pushed upward as far as possible; the vesico-uterine fold of the peritoneum is then opened and the fundus of the uterus dislocated through it. In two cases in which the uterus was retroflexed, this was done by means of a sound. The posterior surface of the uterus is now fastened with three sutures of chromic gut to the flaps of the anterior wall of the vagina, about one-half inch from their edges. In the first case the flaps were not resected, but sewn together with a running suture, and a colpo-perineorrhaphy added in the usual way; in the second and third cases, the flaps were united after resecting a strip about one-quarter of an inch in width. The vagina was then packed with gauze and the patient put to bed. He has operated thus in three cases, which he reports, the results being good in all. The operation demands less time and is accompanied by less bleeding than in any other method so far employed by him. Of course, its usefulness is limited and only patients near or past the menopause can be subjected to it, but in old women where prolonged operation is contra-indicated, the method deserves a thorough trial.

24. **Inoperable Tumors.**—George reports cases of treatment of sarcoma and granuloma treated with pyoktanin and Coley's serum. The former seemed to reduce the size of the tumor, but there was excessive stimulation of growth of tumor cells in the neighborhood and while there was temporary relief the patients ultimately became worse and died. In one of the serum cases, a granuloma, the results were not especially beneficial. The tumors continued to increase in size in the sarcoma case; in the granuloma there was gradual disappearance of the tumor by local necrosis and sloughing, but the tumor began to grow again and was extirpated surgically. The sarcoma case terminated fatally. Two other cases have been treated in the Michigan University Hospital with Coley's mixture, without benefit, one of carcinoma and the other of lymphosarcoma. Therefore, the author concludes that his experience has been unfavorable to its use.

25. **Diphtheria Antitoxin.**—The duration of immunity produced by immunizing doses with diphtheria antitoxin according to various authorities is discussed by Jump, who reports five cases, from which, with the experience of others, he feels warranted in deducing the following conclusions: 1. That as diphtheria antitoxin is practically harmless, all exposed persons should receive an immunizing dose in proportion to age. 2. That 250 units should be given to children under two years and 500 to all others. 3. That the immunity will last for at least three weeks, provided a reliable antitoxin is used. 4. That

all exposed persons should be removed from infected surroundings, either by thorough disinfection of their own quarters or by removal to other places. If this be impossible, the immunizing doses should be repeated every third week.

26. **Follicular Tonsillitis.**—Dulles' treatment is to avoid strong antiseptics and treat his cases with small doses of calomel and soda and saturated solutions of boric acid as a gargle or rather as a wash. In very little children he orders instead the administration of lime water every hour throughout the day. If this is administered a little while before the calomel is given he holds that it does not form black-wash in the stomach, and he has seen no interference with the action of calomel by this treatment. In older persons where there is a good deal of pain he has found it of advantage to give salophen or salol and phenacetin in sufficient doses. He finds that it relieves the pain and he believes it also has a systemic action. He believes in giving rest to the digestive tract in these cases and finds it advantageous to have no food given until the patient, if old enough to speak, asks for it. In some cases that he saw, with much pain and congestion, he found the application of dilute solutions of adrenalin chlorid of seemingly great advantage.

27. **Ear in Influenza.**—The importance of aural complications in influenza is dwelt upon by Smith, who thinks the first manifestations should receive prompt and energetic care. Hot antiseptic solutions are most useful in many acute cases of otitis and hot medicated solutions are not specially the better for the drugs contained. The ear should be frequently examined and prompt incision of the tympanum, before waiting until it is too much distended, should be performed. Many cases will then make a good recovery with antiseptic irrigations followed by introducing a strip of iodoform gauze well into the deep canal, to provide for good drainage, removing it every day or two. We must, however, endeavor to rid the ear of bacteria by keeping down the inflammatory heat and keeping the surface dry. After the secretions have been removed by inflation, irrigation or a cotton carrier, the surface can be gently dried with cotton and hot air, and dusted with some impalpable powder, such as aristol or nosophen, care being taken to only dust the surface, leaving no excess there to be impacted or interfere with drainage.

31. **Phthisiophobia.**—Knopf deprecates the irrational fear of tuberculous contagion and criticizes the head of the Marine-Hospital Service for giving out the opinion that it is dangerously contagious with the result of stopping incoming immigrants who may be suffering from it. He also notices the growth of this idea among the laity and the recent action of the village health board of Liberty, N. Y., and other places. He calls attention to the fact that it is conclusively proven that since the establishment of sanatoria for consumptives, the disease among the villagers of Goerbersdorf and Falkenstein has been actually decreased by one-third of what it was before the establishment of the institutions. The article is a plea for sanatoria for the care of the needy consumptives.

32. **Narcolepsy.**—After reporting a case of diurnal morbid somnolence preceded by free perspiration, lack of refreshment from the physiologic sleep, weak, slightly hypertrophied heart, dilated stomach and hypochlorhydria, with high urinary density and acidity, excess of chlorids, sulphates, urates, etc., in the urine, diminished blood alkalinity and small reduction of hemoglobin and a low degree of relative urinary toxicity, Stern discusses the subject and seems to hold that the primary cause is a toxicosis of some form. He suggests that the excess of chlorid excretion exhausting the supply and causing temporary diminution of chlorid in the blood, which plays an important part in osmotic tension of the body fluids, may be probably the cause of the condition.

33. **The Tonsils.**—Bosworth argues that the tonsils are not a normal physiologic growth, but a distinct menace to health. He reports his method of operation under chloroform with a cold wire snare in preference to the tonsillotome. This diminishes the danger of hemorrhage, which is an important consideration, especially in adults.

34. **Appendicitis and Typhoid.**—The difficulties of diagnosis between appendicitis and typhoid perforation are pointed out by Richardson, who reports a case illustrating them. The main points, he says, to be emphasized in determining between typhoid and appendicitis are that when any of the local signs, pain, tenderness, rigidity and fever are absent, especially tenderness and rigidity, it strongly suggests typhoid. The case must be studied with special care lest typhoid be overlooked; so too, when the constitutional symptoms outweigh the local. Without pain at some time in the course of the disease, there can be no acute surgical lesion of the abdomen; temperature with pain, but without rigidity or tenderness, means typhoid fever or simple continued fever; very high temperature should excite suspicion if pain and tenderness are present but not marked, for acute appendicitis has usually a moderate temperature; a soft abdomen with a high temperature is a suspicious combination, even if there is pain and tenderness; when typhoid is suspected, the pain and tenderness must be distinctly localized in the appendix, and confirmed by rigidity, resistance or tumor, before operation for appendicitis is justifiable. When there is doubt as to typhoid, the operation should be postponed if constitutional signs are severe, and local ones hard of detection. When the abdominal symptoms—pain, tenderness, rigidity, with or without distension—call loudly for operation, the abdomen must be opened, in spite of the possibilities of typhoid; but cases suggesting typhoid as strongly as appendicitis, should until the diagnosis is perfectly clear, be carefully observed.

35. **Fractures in Children.**—The chances of fractures occurring in children and being overlooked are pointed out by Cotton and Vose. There may be only slight symptoms of pain and there is a kind of subperiosteal fracture which is practically common in children, most of the cases reported being of this type. The patients were subjected to skiagraphic examination, the treatment being simple fixation for two or four weeks with perfect results. We are inclined to underestimate the tolerance of children to fractures. In adults there are not infrequent exceptions to the rule that fractures ential immediate and notable pain and disability; but in children the exceptions are so numerous as to require a modification of the rule. In small children if there is a history of a fall or other trauma, especially where the arm or shoulder girdle may be involved, the only safe way is to assume fracture until every inch of the bone has been gone over carefully.

36. **X-Ray Burns.**—Rollins claims to have proven that *x*-ray burns can be produced by *x*-light in electricity and by electricity when no *x*-light is present. He gives an account of his experiments on guinea-pigs and points out that not only burns can be produced on such animals, through a single thickness of aluminum, but they can be killed by light after it has passed through two aluminum screens. *X*-light, he claims, after excluding the participation of all other agents in the results, is a force of great power, and thinks there is a chance for useful original work in this field.

40. **Consumption.**—Monroe gives a number of facts bearing on the hereditary transmission of tuberculosis, showing where the descendants of one parent in a family had all died from the disease while the other parent and his and her children by another partner have been perfectly free from it. He does not find any case of infection in his experience, but refers to a great many other cases where there has been a family inheritance.

41. **Hepatic Cirrhosis.**—Witherspoon's article is largely a general discussion of the subject, and he calls attention to the importance, in operative treatment, of early union of the liver with the abdominal wall so as to insure a general circulation at least in the peripheral hepatic cells and protect the patient from the ill effects of intestinal intoxication. It is also well to perform an omentopexy at the same time, and relieve the portal circulation before the ascites is well established.

51. **Jaundice.**—Mayo concludes from his study of the subject that jaundice is not to be expected in uncomplicated gallstone disease. When due to stone obstructing the common duct there is a history of previous attacks of colic. The symptoms vary

considerably. There can usually be obtained an early history of some little fever, sometimes chilly sensations or sweats. The gall-bladder often can not be palpated. In malignant disease the loss of flesh before the jaundice, the age of the patient, the non-improvement of the jaundice, with a distended and perhaps nodular gall-bladder or adjacent tumor, completes the clinical picture. When due to chronic pancreatitis it will probably be confused with malignant disease; hence, the possibly existing cause would suggest examination as to history, age of the patient, and duration of the symptoms. The various forms of cirrhosis accompanied by jaundice are to be distinguished by examination of the liver and occasionally the size of the spleen. Every practitioner is familiar with the catarrhal jaundice that is most common in young adults and is due to an extension of a mild infection from the gastro-intestinal tract; the age of the patient, slow pulse, lack of general symptoms and the short duration make the diagnosis easy.

62. **Stitch Abscesses.**—Maylard has experimented with patients in which he had previously rubbed in oleate of mercury to determine whether this bactericidal agent could hinder or prevent the production of "stitch abscess," and the actual presence of mercury in tissues under the skin was tested chemically and the fragments of the skin were subject to bacteriologic examination. Chemical examination failed to afford any positive information. Either the mercury was in too small quantity to be detected, or its absorption and transit through the lymphatics too rapid to be caught for analysis. The bacteriologic examination proved a material diminution in the number of micro-organisms present. The ointment could not reach every possible location; therefore, some escaped. The clinical records seemed to afford incontestable proof of the value of the method. He advises the preparation of the skin for operation with lanoline oleate of mercury ointment, by first cleansing the skin by turpentine water, alcohol and ether, if necessary; then rubbing in lanoline oleate of mercury and leaving on a piece of lint besmeared with same until the second inunction is performed twelve hours later. Every case should be treated for at least twenty-four hours before operation, preferably forty-eight hours, with at least two separate periods of "rubbing in" for about ten minutes on each occasion. The lint is removed on the operating table and the superfluous ointment rubbed off with a piece of sterilized gauze.

66. **Intestinal Approximation.**—Frank believes in the Murphy button and he finds that von Bergmann, Gussenbauer and Wölfler, who condemned it four years ago, have within the last year come out strongly in its favor for end-to-end union. Czerny has been using it since 1896. He thinks that for simplicity, time-saving, uniform coaptation of peritoneal surfaces, arrest of hemorrhage, prevention of contracted cicatrix, juxtaposition of histological structures, avoidance of infection, less disturbance of the peristaltic wave, avoidance of pocketing and shelving, reduction of mortality, and in the minimum mortality it surpasses all other methods.

67. **Carcinoma of the Cecum.**—Before describing their cases Cumston and Vanderveer discuss the subject, diagnosis and technique of the operation according to various authors.

76. **Uncinariosis.**—A description of the parasite, symptoms, etc., and a history of the disease in the United States are given by Claytor, who reports a case. He thinks there is an increasing danger of the greater prevalence of the disease from its importation by immigrants from localities where it is prevalent and by those returning from our newly acquired territories.

80. **Thoracic Aneurysm.**—Three cases are reported by Arnold. In the first the aneurysm was not the immediate cause of death, but the author thinks it undoubtedly had an important contributing influence through the attacks of prolonged extreme dyspnea which diminished the resistance of the patient to pneumonic infection which carried him off. In the second case the aneurysm caused the death by inducing aortic regurgitation, dilatation of the left ventricle, mitral regurgitation, general passive congestion and death from asystole, accompanied by edema of the lungs; the responsibility of the aneurysm was indirect. In the third case the pressure of the distended sac interfered with the circulation, causing death, while in the fourth it prevented entirely the exit of air from the lungs, and the patient died of suffocation. With the descent of the diaphragm on inspiration the heart and anterior part of the arch were drawn downward, allowing the air to enter the lungs, but not allowing it to escape. Still another case is reported in which death was caused by starvation from pressure of the aneurysm on the esophagus.

81. **Tuberculosis in Heart Disease.**—The conditions noticed by Anders are: 1. Endocarditis due to tubercle bacilli, which is illustrated by a single case in his experience, and is so rare as to be almost non-existent. 2. Cases of recent endocarditis and chronic endocarditis that are secondary to tuberculosis or merely intercurrent, and are caused by various non-tuberculous infections and other agencies. Such cases do occur and include many of the cases ascribed to tuberculous infection. 3. Forms of chronic valvulitis that are primary and precede the tuberculous infection of the lung, and are ascribable to rheumatism and other recognized causes. This is the most important group and is naturally non-tuberculous in its etiology. It is believed that the effect is different according as it is on the right or left side of the heart. Valvular lesions of the left heart apparently protect against tuberculosis while stenosis of the pulmonary artery predisposes. As appears from a careful review of the literature aortic valve disease seems to be rarely associated with phthisis. When the disease, however, attacks the individual the lung disorder aggravates the cardiac affection.

84. **Echinococcus Disease.**—Lyon summarizes the reported cases of echinococcus disease in North America and discusses the relation of age, sex, occupation, the geographical distribution, diagnosis, etc. He finds that a great majority occur in foreigners, a very large percentage being Germans, and most of the cases are reported from New York and Manitoba. The most frequent anatomic location of the parasite is naturally in the liver. It can not be authoritatively said whether the disease is increasing or not, but it seems to be in domestic animals. He calls attention to the importance of looking out for future possibilities, especially regarding infection of man from dogs, and we should protect our dogs from the infection of diseased cattle, sheep and swine. We can exterminate the disease by enforcing proper sanitary regulations at the slaughter houses. Without such precautions we may expect the condition of Germany and Australia in respect to the number of lives sacrificed to this disorder which has as yet no serious foothold among us.

85. **Herpes Zoster.**—From a discussion of the conditions and theories Van Harlingen comes to the following conclusions: "1. Under the designation zoster or herpes zoster, is to be understood a specific infectious and possibly contagious exanthem, characterized in its invasion by lassitude, general malaise, chills, increased temperature, and more or less digestive disturbance. Following this, in most cases, neuralgic pains develop along certain nerve-paths or metameric areas, together with the development of enlarged lymphatic glands. After a period of several days, more or less, during which the symptoms mentioned, or some of them, have manifested themselves, the characteristic exanthem shows itself, and runs through a fixed cycle of development, acme and decrudescence. The general symptoms, particularly the neuralgic pains, may continue during this period, or, in many cases, may diminish, usually disappearing with the eruption. In other instances, and particularly in older persons, the neuralgia may form a prolonged succedaneum to the regular course of the disease. In a certain number of cases, probably however rare, various visceral complications may accompany the affection. Such are paralysis of sensory or motor nerves, inflammations of the pleura, peritoneum, articulations, or viscera. 2. The infection attacks chiefly the posterior (sensory) ganglia of the cord and the Gasserian ganglion. From hence inflammation and degeneration may extend along the nerve trunks and fibers. No other lesions have as yet been discovered post-mortem, although it is probable that further observation will result in tracing the disease in the various membranes and

viscera when its presence has been clinically noted. The numerous examinations of the skin lesions and such blood examinations as have been made have not as yet thrown any light upon the nature of the disease. 3. Zosteroid eruptions are not infrequently observed in cases of poisoning from coal gas, after the ingestion of arsenic, following injuries of the nerves, as a result of moral shock, as grief, or in hysteria, and probably under other conditions. These, however, are to be distinguished from the true herpes zoster as defined above."

91. **Graduated Responsibility.**—Richardson's article is a plea for the partial responsibility of the insane and he shows how many cases of insanity are yet more or less responsible and holds a plea of irresponsibility should not be held as an extenuating circumstance as regards the duration of the confinement. The man who escapes on this plea should not be allowed at large; more care should be exercised in preventing a person of limited mental capacity from returning to the environment that produced the original act, and the release in all cases should not be unconditional. A single offense of such individuals should be taken more frequently to indicate a propensity from which society should be protected. He asks why can not the legislature authorize the judge to instruct the jury to consider the degree of moral and mental incapacity of the individual as well as the character of the act with which he is charged, and if the jury finds the acts and probable motive to indicate such moral deficiency or propensity or weakness as would render it unsafe for the persons again to gain their liberty, let it be empowered to recommend an indefinite confinement, and why should not the judge be given some discretion as to the kind of institution to which such persons should be sent?

93. **Examination of the Stomach Contents in the Insane.**—The importance of gastric disturbances of insanity is insisted upon by Allen, who gives the results of examinations for gastric lesions in the Michigan Asylum. A number of cases are reported of stomach examinations and treatment based upon these produced good results.

94. **The Wills of Lunatics.**—Buckler's article is a medico-legal review of the law as regards the testamentary capacity of the insane. He summarizes the legal standing in this regard as follows: A person of unsound mind may make a will as valid as that of any other person, unless in the opinion of a jury his power of rational action is destroyed by general mental disease, or by some partial mental disorder affecting the performance of that particular act. The question of undue influence is also a matter for the jury or judge to pass upon. Each case here depends upon its special circumstances.

95. **Psychic Treatment.**—Runge gives an interesting report of the results of moral treatment, and the methods employed in the St. Louis Insane Asylum. He goes over the questions of the influence of patients upon each other of religious exercises, occupation, amusements, etc. In only one instance does he mention absolute defeat of all measures of psychic treatment for the benefit of the case.

96. **The Insane Criminal.**—An analysis of 400 cases admitted to the Massachusetts Asylum for Insane Criminals is given by Metzger with comparison with some of the New York statistics. He finds a bad family history in a very large percentage, 59.4 per cent. have a bad heredity as regards insanity, epilepsy and alcohol. In those cases admitted within the last two years where the history has been looked into somewhat more carefully the percentage of bad heredity rises to over 70 per cent., and still higher figures are afforded by the Matteawan State Hospital of New York. Crimes committed by the insane vary as widely as those of the ordinary criminal; in a very large percentage the criminal career was entered upon at an early age, in nearly all before the age of 25. The majority of insane criminals are multiple offenders. Every type of insanity is represented; the percentage of cases of dementia precox is especially large, and many of them have also a strong alcoholic factor or element of inebriety. Many of the cases classed as alcoholic are very unstable mentally and might have become insane even if they had not been intemperate. Metzger thinks that too much stress can not be laid upon the number of insane men who have been condemned to prison with mental defects unnoticed or disregarded, and gives an enumeration of such patients that have later come into his hands. The offense committed by the individual is by no means the criterion by which to judge of his danger to society. Of 400 men, 216 were apparently irresponsible at the time they were tried, but only 40 of these were recognized as such. He thinks that a plan of medical supervision of all arrested individuals would be a good thing, and it could be more easily carried out in the large cities where the necessity of such foresight is most required.

101, 102. **Neuron Retraction.**—The paper by Weil and Frank gives the history of theories of neuron contractility, description of the methods employed by them, and of the results. They limited their attention to changes in the dendritic processes of the pyramidal cells of the cerebral cortex and corroborate the statement of Cajal that normal and toxic matter cannot be differentiated by the number of varicosities or gemmules. Moreover, different pieces of the same material, whether toxic or normal, vary greatly in the proportion of varicosities and of gemmules. Admitting these objections, they think the theory of retraction is deprived of all anatomical evidence. They also believe that the proportion of varicosities is largely dependent upon the method employed, and they must be regarded as artefacts. There is, therefore, no morphologic basis for the theory of retraction. There are many physiologists who hold to the belief that this theory offers the only possible explanation of certain groups of nervous and psychical phenomena. They do not deny that there may be retraction, or an allied process, but assert that the Golgi method in the present state of its development is incapable of demonstrating this fact.

The same subject is viewed from a psychic standpoint by White, who claims that while histology has failed to establish the fact it is strongly corroborated by the facts of psychopathology. He has been able in a number of cases to apply this theory after making the diagnosis and formulate a system of treatment which gave good results. He holds that it may be in some respects analogous to the atomic theory, only demonstrable by phenomena and not by the microscope.

103. **Identification of the Insane.**—The application of the Bertillon system of identification to the insane, or a modification of it suited to conditions, is advocated by Winter and Steinbach, who mention instances where serious mistakes have been made in identification of the insane who come to asylums and are unable to give an account of themselves and with very imperfect histories. They give tables and figures illustrating the cards and instruments employed.

106. **The Cephalic Index.**—The general deductions from statistics that have been made seem to indicate that a comparative dolichocephaly means inferiority, while comparative brachycephaly is the hallmark of mental superiority. Winter's observations, however, do not quite bear this out in his study of British crania, and seem to support the theory that an unusual increase in the relative width of the head, among the British at least, is indicative of psychophysiologic variability often accompanied by mental and moral instability.

107. **The Sacral Cord.**—Onuf's studies of the sacral region of the spinal cord are elaborate, and want of space forbids their detailed reproduction here.

111. **Tumors of the Corpus Callosum.**—Putnam and Williams report three cases of callosal tumors and analyze the symptoms. They give also an appendix additional with thirty-eight tabulated cases from the literature, which are also analyzed. One striking fact is the predominance of mental symptoms in cases of tumor localized in this region and the frequency of excitability over depression. In many cases, however, the condition may be latent over a considerable period. The anatomic and physiologic considerations are discussed and the authors come to the conclusion that the brain can be considered simply as an instrument, a series of sensori-motor mechanisms, a multitude of threads stretching from periphery to periphery, devoid of the power of storage of memories and without any exclusive intellectual center, to more readily explain the symptoms of tumor of the corpus callosum. The sole function of the brain consists in bringing about actual motion or nascent motion. It exists for nothing else; and mental life consists in clothing these actions, which seem to

be concerned only with the needs of the present and the future, with the colors and forms drawn from the life of the past. Into each act of the present the whole of the actor's past enters in some measure.

119. **Diagnosis of Ocular Paralysis.**—Duane gives a table of diplopia in paralysis and sums up his conclusions in regard to this subject in the following: 1. In the case of paralysis of an elevator or depressor it is immaterial for the diagnosis whether a lateral diplopia is present or not and whether, if present, it is homonymous or crossed. The diagnosis in these cases is to be made from the character of the vertical diplopia (or vertical deviation behind the screen) and from the way in which this diplopia increases in looking up or down, and especially in looking toward the four corners of the field of fixation. The character of the diplopia in looking straight up or straight down affords no certain criterion for the diagnosis, but we must ascertain how the diplopia changes when the eyes are directed respectively up and to the right, up and to the left, down and to the right, and down and to the left. The diagnosis then is readily made from the table given. 2. From the same table the diagnosis can readily be made in cases of combined paralysis. 3. When diplopia is absent, the diagnosis can still be made, in marked cases at least, by the screen test, performed with the eyes directed respectively up and to the right, up and to the left, down and to the right, and down and to the left. The deviation behind the screen in each instance will correspond in character and amount to the diplopia that would be ordinarily produced by the paralysis, and the diagnosis here, too, can be made from the table just as if diplopia was present.

133. **Hospitals for the Insane.**—Hill gives the history of the Board of Control Management of the Iowa State Hospitals. It appears that the civil service rules are not very elaborate, but a non-partisan board assures against political influence in the management and great benefit has been derived from this fact. The superintendent has absolute control of the appointment and discharge of subordinates and nothing is stated as regards the examinations for minor offices.

141. **Tuberculin.**—Cornick has had good satisfaction in the use of tuberculin for diagnostic purposes. After first securing a temperature record of the patient, taken every two hours from 8 a. m. to 8 p. m., for two or three successive days, he gives from 1 to 5 milligrams of tuberculin subcutaneously at 8 p. m., doubling the dose again in forty-eight hours, and again doubling at the end of every forty-eight-hour period until the temperature rises two degrees, as shown in excess of the same hour the previous day, in which case the diagnosis is positive, or until the limit of 20 or 30 milligrams has been reached for the final dose without such reaction which excludes tuberculosis. He uses the standardized tuberculin prepared by the Bacterio-Therapeutic Laboratory, of Asheville, N. C., and a 1 per cent. dilution for the beginning dose with a 10 per cent. dilution, if necessary, at the last. Sterilized water containing .5 to 1 per cent. carbolic acid is the best diluent, and the locality used is the loose cellular tissue over the back in the interscapular space. He has employed tuberculin also therapeutically with advantage, as he claims, but considers that this use must be limited to very early stages of the disease where it has a great curative value.

142. **Yellow Fever.**—Oliver argues from records of past epidemics that the mosquito theory of transmission of yellow fever is false.

147. **Typhoid Perforation.**—The occurrence of typhoid and its frequency is discussed by Taylor, who holds that possibly one-third of the deaths from typhoid are due to this complication. The surgical treatment, of course, is the only method that offers hope. The difficulties of diagnosis are noted and he says that his experience prompts him to attach most importance to the following: 1. Pain. 2. Muscular rigidity. 3. Inhibited peristalsis. We need more proficiency in the diagnosis than in the operative technique. We should bear in mind that perforation is usually located in the last eighteen inches of the small intestine, and should not be too much perturbed in regard to shock. When this is absent or is not dangerously profound, immediate intervention is indicated.

150. **Typhoid Fever.**—When called to a case of typhoid Hubbard usually commences by giving the patient a capsule of calomel ½ gr., guaiacol carbonate 2 grs., podophyllin 1/40 gr., every two hours for twenty-four to forty-eight hours, depending upon the condition of the bowels. He continues this until he has secured four or five intestinal evacuations for two successive days, and then discontinues calomel and uses ½ gr. of menthol added to the guaiacol and podophyllin. If after discontinuing the calomel there is a tendency to inaction of the bowels, he gives a small dose of salts or Hunyadi water in the morning, and always tries to get two or more evacuations daily. If after three or four days of treatment the temperature remains high or rises, he again uses calomel every twenty-four hours or less, which invariably reduces the temperature and results in general improvement. He continues the guaiacol and menthol throughout the disease. He thinks the efficiency of this method is demonstrated by clinical results.

## FOREIGN.

1. **Epilepsy.**—Broadbent commences by saying that epilepsy is a disease of which we know extremely little definitely, and with certainty nothing at all. We are fairly agreed as to the cases to be called epilepsy and have a considerable knowledge of the etiology, but its pathology is largely conjectural and its treatment empirical. After first reviewing the well-known symptoms he refers to some points of particular importance. One is, fits rarely come on during work or excitement. We need not forbid epileptics to take exercise, to ride or even to cycle in moderation. In the causation of the disease the most important element is undoubtedly heredity or the inherited tendency to predisposition, though it may exist without any such, other than can be excited by peripheral irritation. Sufficient importance has not been given to the sensory nerves in this disease. We can inhibit the attack sometimes through these, and it seems reasonable that they may excite it. As regards the pathology he holds to the Jacksonian theory of nerve discharge and nerve instability, using the usual terms in this explanation. As regards the prognosis, he thinks if epilepsy does not occur in a low type of nervous organization, and the attacks do not begin in infancy or puberty, but only after some serious exciting cause and late in adolescence or adult life, there is a possibility that it may be held in abeyance. The state of the circulation is a matter of importance. Prolonged observation has convinced him that the tension of the pulse is unduly low in epilepsy. This he considers is characteristic, while a high tension pulse for the age of the patient is ground for hopefulness. He mentions a case which seemed to bear out this view. As regards treatment, open-air life, exercise of almost every kind, care as to diet, but without any special prohibitions, avoidance of overfeeding and having the evening meal always light are advised. Stimulants, however, must be forbidden. He would not prevent an epileptic boy or girl going to school unless the fits are very frequent, excepting for the fear of disturbance the fit might make with other children. We should study the hereditary tendency, avoid exciting causes, look after dietetic derangements and especially the menstrual period if irregular or accompanied with pain. He believes that bromids are given too much in a routine way and the question is whether relief of the symptoms may not be too dearly purchased by these depressing drugs. He think that if Julius Cæsar and Napoleon, who are said to have been epileptics, had been treated with bromids they would not have amounted to so much in the world. The rules he lays down for himself are to give the bromids simply to diminish the frequency of the fits, while other means should be employed to reduce the instability of the system. In cases where the fits are not frequent he does not give the bromids regularly, but with premonitory symptoms these should be taken up. When they are frequent they should be given in such amounts as may be necessary and at such hours as may be suggested by the time in which the fits are liable to occur. If the fits are nocturnal we may possibly be able to do something by regulating the cardiovascular instability. Thorough examination of all the bodily organs and functions should be made and he believes in

keeping down the pulse tension in exceptional cases where high pressure exists. For lowered vitality give phosphorus, hypophosphites, arsenic with strychnia and sometimes iron, and he thinks arsenic itself has a beneficial effect on the disease. The condition will bear a great deal more study than it has as yet received.

2. **Cancer of the Breast.**—Banks' article is largely a historical résumé and argument claiming the credit for himself and others which has been of late years given to Halsted for his thorough operation.

3. **Oophorectomy in Cancer.**—Butlin in his article does not support the idea of any special positive relation of the existence of the ovaries to cancer of the breast and the benefit of oöphorectomy. He believes in local operation. In many cases it may be successful, and if the disease still continues and kills the patient it may do so in some distant organ with much less pain and suffering. Moreover, if it recurs *in situ* in the patient in the form of nodules she generally suffers far less than if no operation had been performed. We are asked to replace the operation by the removal of the ovaries and the administration of thyroid and he says we can only reply that so far as known there is no single case of cure by means of oöphorectomy. Even if after operation and oöphorectomy the disease returns it is in no way improved by the latter operation. He says that if we are to come to a definite opinion as to whether oöphorectomy can cure any woman of cancer it must be by applying the practice in say twenty or twenty-five cases where it exists to a very mild extent without any obvious extension to the lymph glands. If a surgeon can find that number of patients willing to take the risk he does not blame him for performing oöphorectomy, but he would not have the courage or faith himself to do so.

5. **Inheritance.**—Mercier's article is a scathing criticism of the recent views of Archdall Reid and his criticism of the medical theories of the transmissibility of acquired characters.

6. **Phantom Tumors.**—The paper by Bennett is a clinical lecture on phantom tumors in which he describes cases of these due to local irritation, either superficial or internal, to occupation and to imitation. Phantom tumor is not a disease in itself, but simply a sign of some concurrent disease or eccentricity. When caused by local irritation the source of the latter may be immediately in relation with the phantom, or it may be more or less distinct or remote from it. As a rule the nature of the cause can not be determined until the tumor itself has been allowed to subside under anesthesia. He suggests in doubtful tumors keeping the possibility of phantom tumors in mind. Sometimes examination in sleep will settle the matter, but some persist during sleep. The important detail in anesthesia for diagnosis of these cases is to place the hand gently upon the tumor from the time of commencement of giving the anesthesia. It will be found that during the early stage of the anesthesia it increases a little in size and hardness, but with the on-coming of complete anesthesia little vibrations or quivering motion will be felt, and then it will perceptibly melt away gradually under the hand. Such tumors never disappear suddenly, and this is a matter of importance. If the tumor suddenly slips away the evidence of positive tumor is sure. It has slipped back into the abdomen, say for example, instead of being possibly a mere muscular contraction of the rectus. Another point he calls attention to, is putting the warm hand flat over the part. The pain, muscular rigidity, and other difficulties caused by the indiscriminate manipulation by cold hands and finger tips account for many errors in diagnosis. As regards treatment there is not much to be said. In irritation cases the cause should be removed if it has been discovered. In occupation phantoms, rest from the occupation may give relief; but change of occupation is necessary for a cure. The imitation phantom is generally of small consequence; the patient should be kept from association with the person imitated. Galvanism vigorously applied may afford relief.

8. **Internal Derangement of the Knee-Joint.**—The article by Barker discusses the conditions following splitting and dislocation of the semilunar cartilage in its various forms. In operating on these cases the incision he uses is one commencing over the inner border of the ligamentum patellæ about one-half inch above the articular border of the tibia and carried with a curve downward and outward to the anterior edge of the internal lateral ligament. The lowermost edge of the flap so formed should lie about one-half an inch below the anterior border of the tibia. The cut should be firmly made and divide the periosteum. The flap should now be raised with the periosteum until the edge of the cartilage appears under the attachment of the meniscus, which, if still attached, will raise with the flap until its under surface is seen. If partially torn anteriorly it can be stitched to the periosteum with a few silk threads. The periosteum is now laid back in its place and secured there by silk stitches, the meniscus becoming firmly attached to it. The rest of the wound is closed without drainage. If complete peripheral separation has taken place recently and the curled-up meniscus can be easily reduced in flexion to its old position it can also be stitched as above, but when this separation is old and the cartilage is shrunken up around the crucials it is better, by snipping its attached ends with scissors, to remove it completely. The same is true in cases of "central splitting" where the partial rent is behind the internal lateral ligament. Here it is better to complete the rent and take away the whole meniscus. Great care should be taken to avoid touching the parts with the fingers. Nothing but carefully sterilized medical instruments and sterilized gauze should be used. Antiseptics should be avoided; they cause irritation and the wound should not be kept open a moment longer than necessary. Ice-bags over the dressings for the first week or so are agreeable and probably keep down the effusion.

9. **Scurvy.**—The three recent theories of scurvy—that of Wright that it is due to acid intoxicaton, that of Liston that it may be caused by ankylostoma, and that of Jackson and Harley that it is a condition of ptomain poisoning—were tested clinically by Lamb. He finds that in his cases there was nothing to support the view that any of these was correct. He comes to the conclusion, therefore, that scorbutic symptoms, though associated in some cases, like those of Wright's, with a condition of acid intoxication, may develop entirely independent of this condition. There appears to be no one etiologic factor and pathologic condition underlying the symptoms clinically known as scurvy.

14. **Glycosuria and Insanity.**—Dawson reports seven cases of glycosuria associated with insanity in which the symptoms were local discomfort in varying degree and the blood pressure was high. Glycosuria is not necessarily a bad symptom, as five of his seven cases made good recoveries and another seems to be on the road to recovery, while the remaining one is for other reasons a hopeless case.

Bulletin de l'Academie de Medecine (Paris), December 24.

**Sero-Vaccination of Hog Cholera.**—One of the prizes of the Académie was awarded to Professor Leclainche of Toulouse for his successful sero-vaccination of hog cholera. He reports that 30,272 animals have been treated on these principles, and the results have been as successful as during the first trials. Even in an advanced stage of the disease—which runs a very brief course—the animals can be saved by the prepared serum. Its efficacy is comparable to that of antidiphtheritic serum, but even surpasses it. Phagocytosis is always active in this disease, even when it terminates fatally, but when aided by the prepared serum it is stimulated to such an extent that the animal recovers. Leclainche supplements this effective but transient serum protection by inoculation of the virus, which confers durable immunity.

**Resolution on the Prophylaxis of Malaria.**—The Académie unanimously voted in favor of a resolution urging the government to special legislation to enable the inhabitants of Corsica, Algeria and other colonies of France to obtain quinin everywhere, of a good quality and at a low price, as has been accomplished in Italy by the law passed Dec. 23, 1900. This established a maximum rate of 40 centimes for two grams of quinin hydrochlorate and of 32 centimes for the sulphate. Merchants distant more than 500 meters from a pharmacy are

allowed to sell the quinin, which is prepared in the government factories.

**Transmissibility of Human Tuberculosis to Animals.** S. ARLOING.—Every one of the 23 animals in Arloing's tests showed tubercular lesions and more or less severe symptoms of tuberculosis, after they had been inoculated with human bacilli from three different sources. They included 4 calves, 6 sheep, 4 goats and 3 asses, all species which Koch declared to be non-tuberculizable by human bacilli. Arloing compares his tests with those of Koch and states that he administered larger doses, using 2 to 4 c.c. of a 1 to 25 emulsion, while Koch used a 1 to 500 to 5000. Arloing concludes that as the virulence of the tubercle bacillus is variable, and as it adapts itself to certain organisms, it is not surprising that the bacillus derived from man may display less activity on certain animals than the bacillus of bovine tuberculosis. It is possible, he asserts, to find and cultivate human bacilli capable of transmitting tuberculosis to cattle, sheep and goats. He, therefore, persists in assuming the unity of human and bovine tuberculosis from the Koch bacillus. He also insists that impartial study of Koch's report shows that the experiences on which he bases his assertions did not justify him in such absolute distinctions. Three of the tests which he states were negative, should really be classed as positive, as also his four "dubious" cases.

Bulletin de la Soc. d'Electrotherapie (Paris), November.

**Electric Treatment of Sprains.** PLANET and CHARRIER.—The pain is the obstacle to the mobilization of the joint in case of sprain. Faradization for five to ten minutes a day completely banished the pain in a number of cases of both recent and chronic sprains described by Planet. As soon as the pain was arrested the patients could mobilize the joint without trouble, and thus prevent or cure the functional impotence of the injured limb. The electricity was applied once or twice a day until the cure was complete.

Bulletin de la Soc. des Hop. de Paris, December 26.

**Mitral Endocarditis with Vegetations, Ulcerative Aortitis and Incipient Embolic Aneurysm of the Abdominal Aorta.** HUCHARD.—A young man, healthy except for an apparently brief attack of syphilis five years previously, exhibited symptoms of pseudo-intermittent febrile, infectious endocarditis, which terminated fatally in fifteen months with the complications mentioned above. Huchard concludes from the study of this and similar cases that infectious diseases are liable to produce circumscribed arteritis sooner or later, frequently due to an embolic process, and terminating in an aneurysm of rapid development. In other cases the aneurysm may develop rapidly on a chronic aortitis. The infectious disease may produce an aneurysmal tumor even after several years. The circumscribed ulcerative arteritis preceding the aneurysm may be produced by the embolic process or by the colonization of various micro-organisms in the previously altered coats of the artery. Le Gendre has observed a case of infectious endocarditis in which embolic accidents occurred several times, some of them affecting the nerve centers and causing right hemiplegia with aphasia, left hemiplegia and brachial monoplegia, all of which passed away in turn. During the intervals, the patient, a child with mitral and aortic valvular defect, apparently recuperated his health until he finally succumbed to infarct of the kidneys. In another case an embolic aneurysm of the humeral artery developed acutely during an infectious endocarditis and colonies of streptococci were found in the walls of the artery as well as in the infarcts in the spleen and kidneys, evidently derived from the vegetations on the mitral valve.

Bulletin Medical de Quebec, December.

**Latent Endometritis in Pregnancy.** W. Albert has recently announced that germs from the vagina may infect the uterus at any age, but especially after menstruation has commenced. Every vagina contains germs, but Doederlein's bacillus is the only one to be found in normal conditions. The infection of the vagina, like that of the cervix and body of the uterus, after an acute, frequently slight and brief stage, may become latent, and conception is possible in this latent stage of the affection. Many premature deliveries, septic abortions and cases of so-called post-abortion endometritis, many of the discomforts of pregnancy and the majority of puerperal accidents, may be attributed to a latent microbian endometritis, anterior to the pregnancy. His statements are based on more than 10,000 maternity or gynecologic cases. The *Bulletin* editorially confirms his statements and adds that the same cause is probably responsible for many pathologic alterations in the placenta, abnormal adhesions, etc., uncontrollable vomiting, eclampsia, nephritis and other pathologic processes. Prophylaxis should therefore aim to render the vagina aseptic, which would materially reduce the number of puerperal and post-puerperal affections. "At present our prophylactic measures against puerperal fever are instituted too late."

Presse Medicale (Paris), December 25.

**Splenic-Hepatic Asytolia.** P. OULMONT.—Hepatic asystolia is the term applied to cases of cardiac insufficiency characterized by hypertrophy of the liver. Oulmont has recently observed two cases of well compensated cardiac insufficiency characterized by hypertrophy of both liver and spleen. There were no venous anomalies and no history of preceding infections which might have injured the spleen, but both patients exhibited evidences of severe anemia, to which they finally succumbed. This anemia was accompanied by an increase in the numbers of hematoblasts, while the proportion of leucocytes was nearly normal. One patient was a man of 24 and the other a woman of 28. The cachexia was rapidly progressive after the congestive hypertrophy of the liver and spleen had developed.

**Clasp for Suture of the Bones.** A. JACOEL.—The clasp is shaped like a double-pointed tack, only the space between the points is longer in proportion. The points are grooved in eight concentric circles. The edge of the spaces between the grooves flares slightly away from the point. This enables the clasp to take very firm hold of the bone and not slip out of place. The grooves are made on the principle of carpenters' nails so that the clasp will not crack the bone, when hammered into the holes made for them. One or two of these clasps will hold even a fractured clavicle solidly in normal position.

December 28.

**Intermittency of Argyll-Robertson's Sign in Tabes.** C. MANTOUX.—In a case personally observed and in three others Mantoux has collected, the pupil signs were intermittent during the course of tabes. The intermissions may be brief—a single day—or may persist for months. The appearance and disappearance of the signs seemed to coincide with gastric crises in the cases studied.

Progres Medical (Paris), December 21.

**Uremides.** P. RAYMOND.—Uremides are an eruption coinciding with other uremic manifestations, gastric, intestinal, pulmonary or cerebral. They are usually generalized and without any special arrangement, but they may become localized on the limbs, near the hips or shoulders, or in the back or over the sternum. Exacerbations are noticed with the variations in the renal lesions and fluctuations in the auto-intoxication. This eruption is essentially erythematous, but it may be vesicular, bullous or even purpuric, according to the layer of the derma involved. The lesions are essentially those of edema, with intense dilatation of the vessels and minute hemorrhages. They are not limited to the skin alone but are found also in the muscles beneath. Probably all the vessels participate in the dilatation. The uremide occurs when the kidneys are becoming less permeable, sometimes even in apparently mild cases of Bright's disease. As it indicates a more intense toxemia, it renders the prognosis grave, suggesting the approach of death. Only one of the six cases which Raymond has had occasion to observe, terminated in recovery. The others were all rapidly fatal. The uremide is probably due to the action on the nerves of the products of auto-intoxication, inducing vasodilatation and the consecutive cutaneous affection. It is probably more common than generally recognized, although

it by no means follows that every cutaneous manifestation in a uremic subject is necessarily an uremide.

Centralblatt f. Chirurgie (Leipsic), December 28.

**Per-Oral Intubation.** F. KUHN.—The tube extends from the throat through the mouth to the outer air, instead of being made for the throat alone. It is of metal, flexible, with a curved guide inside. A cross-piece on the outer end holds it in place in the corner of the mouth. A solid nut is fastened on the tube at the point where it passes between the teeth, so that it is impossible to close the jaws or bite the tube. The advantages of thus being able to ensure uninterrupted breathing during narcosis, a strumectomy, etc., render this peroral intubation a very valuable measure under many circumstances. It obviates the necessity of a gag and of pulling out the tongue. A very wide tube should be selected for a narcosis. The assistant can keep it clear of secretions with a small spiral brush. The most important indications for this peroral intubation are symptoms of compression, hitherto compelling tracheotomy. The danger of infection from a tracheal wound is avoided and the tube can be left in place for hours at a time. The second indication is to prevent aspiration of secretions and blood in operations on the upper air passages. The pendent position for the head becomes unnecessary with this intubation as it prevents aspiration and acts like a tampon for the lower portion of the throat. Even if nose, throat and tongue are packed so that breathing is impossible, except through the tube, it continues undisturbed. In case of asphyxia, air can be blown into the lungs through the tube by a rubber bulb. Kuhn has long advocated these flexible metal tubes—Metallschlauchsonden—for clinical diagnosis, especially for the alimentary canal.

Centralblatt f. Gyn. (Leipsic), December 6.

**Early Sign of Commencing Pregnancy and of Death of Fetus.** O. SCHAEFFER.—An important sign of the changes in the circulation which accompany a commencing pregnancy, is a reddish stripe on a dull livid background, which runs across or slanting in the region of the urethra or the exterior of the tuberculum vaginæ. This stripe is evidently due to vasomotor influences directly dependent on the vitality of the fetus, as Schaeffer found that its disappearance coincided with the death of the fetus. Another sign of pregnancy to which he calls attention is the progressively increasing resisting power of the blood corpuscles in blood drawn directly from the portio of the vagina. A drop, representing about 1 c.mm., is mixed with 11 c.mm. of some fluid isotonic for healthy erythrocytes. In a fluid of this nature the vigorous corpuscles stain and shrivel while the weaker swell and grow pale and granulated. In a mixture of iodin, potassium iodid and water, for example, in the proportion of 1, 2 and 300, the strong corpuscles turn brown, the less resistant pale yellow, and the very weak remain glassy. Under ordinary conditions in healthy individuals with healthy genitalia, the dark-stained, vigorous corpuscles are in the proportion of 2.5 to 5 to one of the pale corpuscles. These proportions become progressively higher during a pregnancy. In a number of cases he found the proportions between 4.1 and 4.8 to one in the second month; between 6.2 and 7.5 to one in the third month; between 4.8 and 12 to one in the fourth to sixth month and between 4 and 24.2 to one in the seventh month. A sudden drop from a high to a low proportion was always followed by labor in two or three days. The drop indicates a decline in the arterial blood supply and extensive admixture of venous blood. The menstrual periods are marked during the pregnancy by a similar phenomenon on a small scale.

**Dysmenorrhea.** MENGE.—The menstrual blood in the uterus probably acts like a foreign body, Menge thinks, and it induces contractions of the organ and consequently labor pains. These contractions and pains in normal conditions are so slight as to pass practically unnoticed. They amount to dysmenorrhea only when some mechanical hindrance interferes with the flow or when it causes irritation of local pathologic conditions, or in case the nervous system is abnormally sensitive. Each of the three varieties, the mechanical, the inflammatory and the nervous, requires different treatment.

Dermatologisches Centralblatt (Berlin), November and December.

**Balsam and Salicylate Treatment of Gonorrhea.** S. BEHRMANN.—When balsam treatment is commenced early in acute gonorrhea the discharge soon loses its purulent character and the conditions generally improve. During this stage carbonated waters should be avoided. After the gonorrhea has lasted about four weeks and has been modified by the santal oil or other balsam administered, Behrmann believes that a point is reached when only a slight impulse is required to start nature on the road to complete recovery and prevent the transition into the chronic stage. This impulse he thinks can be found in the use of sodium salicylate. The salicylate is eliminated by the urine and mucous membranes, and its action is much more powerful in the presence of carbonic acid, consequently, wherever there is inflammation and swelling. It stimulates the tissues from within, and the complete restitution of Morgagni's crypts and Littré's glands is possible under its influence. The dose should be a tablespoonful every two or three hours of a 2.5 per cent. solution of sodium salicylate, until 15 gm. of the salicylate have been taken. It is well to keep up as much as 3 a day for some time after this. It should be supplemented by a carbonated water. The mild alkali in the water prevents the precipitation of the salicylic acid by the hydrochloric acid in the stomach and hence prevents gastric troubles and allows the salicylate to be long continued. It also increases the diuresis and thus brings the medicating substance into more frequent contact with the mucosa of the urethra. Binz has established that the action of salicylic acid is enhanced by the presence of carbonic acid. The latter has also a tendency to prevent shriveling. It promotes the retrogression of the lesions and thus favors restitution.

Dermatologisches Zeitschrift (Berlin), December.

**Retarded Healing After Radical Operation of the Middle Ear, by Chronic Urticaria.** WARNECKE.—A man of 40 was operated on for the relief of otitis of the middle ear which had recurred a number of times since childhood. The wound was healing normally when urticaria developed on the granulating surface and persisted for three months, thus postponing the healing of the large defect left after the operation. No medicines had any effect on the process.

Deutsche Med. Wochenschrift (Berlin and Leipsic), December 26.

**Plasma-Destroying Toxins in the Organism.** E. GRAWITZ.—The vicinity of factories where lead is manipulated has afforded Grawitz opportunity to study lead poisoning on an unusually extensive scale. He states that he never found any indications of hemocytolysis in these patients, no hemoglobinemia, icterus nor hemoglobinuria, and yet, they were distinguished by a grayish-yellow complexion and progressive anemia. The anemia resembles that which follows the gradual absorption from the intestines of toxins destructive for the blood. He also noted that a similar anemia is observed in patients with intestinal hemorrhages, or with hemorrhagic ulcer or carcinoma of the stomach, or intestinal hemorrhage accompanying cirrhosis of the liver. The red corpuscles in all these cases show granular degeneration at the time of the hemorrhages, disappearing soon afterward. He cites other data to support his assumption that this degeneration is the result of the formation of toxins in the intestines by the action of the bacteria of putrefaction on the masses of blood. He also succeeded in inducing this granular degeneration of the red corpuscles in healthy persons by administering to them various preparations of hemoglobin sold as tonics. The degeneration was apparent after a dozen pills of either "sanguinol" or "hæmol" had been taken, and it disappeared soon after the pills were suspended. There was no increase in the excretion of indican. These facts throw light on the degeneration of the blood in case of intestinal auto-intoxication in general, and on the anemia of anchylostomiasis. The anemia in the latter is due partially to the loss of blood sucked by the parasites in the intestines, and partially to the toxins generated by the putrefaction of the blood constantly trickling into the intestines.

**Removal Through the Mouth of Fishbone in Left Bronchus of Young Child.** J. A. KILLIAN.—A gill plate, 22 mm. long, was impacted in the left bronchus of a child three and one-half years old, as Killian determined by direct bronchoscopy. After chloroform and cocainization of the throat—the little patient with head pendent—the bone was removed with a small hook, all under control of the eye through the bronchoscope, without injury to the air passages. In case this method of bronchoscopy does not succeed, or there is threatening stenosis, the bronchoscope could be introduced through a tracheotomy wound.

Wiener Klin. Wochenschrift, December 5.

**Sterility.** R. CHROBAK.—With the application of laminaria and tupelo Chrobak has cured a number of cases of sterility, characterized by slight hypoplasia of the uterus, scanty or irregular menstruation, sexual anesthesia and sterility. In other cases he has found it necessary to cut a wedge-shaped piece out of the internal os. This has no influence on the sexual anesthesia. Sterility is due in other cases to the immediate loss of the sperma from the vagina, either from relaxation of the parts or from forcible expulsion from an excessive contraction. Slackness of the part should be treated by general tonic measures and gymnastics of the levator ani and of all the muscles of the perineum, with, possibly, the shortening of the elastic muscles, pessary treatment, an insignificant plastic operation or paraffin prothesis. In case of a short vagina and retroversion, with sensitive adnexa, he slits the rear wall of the portio down to the posterior vaginal cul-de-sac and resects a wedge, as pessary treatment is inapplicable here. He considers loss of the sperma in such cases an indication for radical intervention.

December 26.

**Pigment Patches in Connection with Pernicious Anemia.** A. V. DECASTELLO.—The development of pernicious anemia may be preceded by several years by the development of patches of pigment, with hypertrophy or atrophy of the skin. The patches, in a case described, coincided with certain zones of sensory spinal innervation, demonstrating their dependence on some alteration of the central nervous apparatus. In some cases the patches appeared with the development of the anemia, or occurred during its course, and in one case that has been reported, appeared during a remission and retrogressed later. In the personal case described, the absence of all other sensory or vasomotor disturbances indicated that the cause of the pigmentation originated in the trophic centers and tracts.

**Peripheral Gangrene in Phosphorus Intoxication.** F. VOLLBRACHT.—Subacute intoxication with phosphorus disturbs the circulation to such an extent that the peripheral parts of the body have a tendency to gangrene. In three of the few rare cases that have been reported—including a personal case described at length—the aorta system was found abnormally narrow. This was evidently a favoring factor in the production of the gangrene, as was also compression of a part of the body in another case.

Zeitschrift f. Orthop. Chirurgie (Stuttgart), ix, 4.

**Joint Neurosis and Joint Neuralgia.** C. MOEHRING.—These two affections can be differentiated, Moehring states, by the character of the pains and by the tenderness of the nerve trunks of the region in the neuralgia. There is frequently in both a history of a preceding acute infectious disease. A joint neurosis is a combination of phenomena which indicate functional, traumatic or vasomotor disturbances or all associated. The joint is frequently intact to all appearances, or the trifling alterations are out of all proportion to the intense pain. It almost always grows less at night and allows the patients to sleep. The limb involved is remarkably weak, without the slightest atrophy of the muscles; in some cases the muscles and tendons are rigid, the limb usually in extension. Puncture and local treatment are ineffectual, but arsenic and potassium iodid or even quinin have produced good effects. The joint neurosis affects principally, 1, hysterics; 2, persons with congenital or acquired weakness of the nervous system; 3, persons of a feeble constitution, and in a few instances, otherwise healthy persons. Both peripheral and central causes combine to induce a neurosis of this kind in most cases. When a trauma sets up a violent joint neurosis in an otherwise healthy person, some central disturbance of reflex origin probably exists in the lateral columns. It is possible that the local treatment instituted in these cases entails increased irritability of the nerves, on one hand, and prolongs the central disturbance on the other. Exercise of the joint would counteract this tendency, as an adjuvant to general tonic measures. In all cases of joint neurosis, an energetic psychic treatment is indispensable. The efforts of the physician are frequently supplemented by chance. A fright, an intercurrent affection, or an entertainment may be followed by the disappearance of the pains as suddenly as they commenced. Many of the "miracle cures" probably belong to this category. The physician should aim to prevent the development of such a condition in the predisposed under his charge. Moehring relates the details of ten cases personally observed, the patients being from 12 to 38 and more years old.

## Queries and Minor Notes.

VITAOPATHY AT ROCHESTER, N. Y.

SAN FRANCISCO, Dec. 6, 1901.

*To the Editor:*—Possibly the following may not be of interest to you, but I enclose it as one of the things the reorganized profession should fight. Mrs. L., of San Francisco, has a cancer of the pyloric end of the stomach. She is an emaciated woman with a decided cachexia, and with an abdominal wall so thin that the merest tyro could not do otherwise than made a diagnosis, for the outline of the tumor is perfectly evident to both palpation and inspection. I had occasion some months ago to diagnose her case, when I advised pylorectomy. The distinguished gentleman who is responsible for the enclosed letter evidently does not agree with me! G. H. E.

"ROCHESTER, N. Y., U. S. A., Nov. 26, 1901.

"*Dear. Mrs. L.:*—Your request for free diagnosis came duly to hand. I have given your case my careful consideration, also consulted with my specialists relative to it, and it is our combined opinion that you are suffering from myasthenia gastrica.

"These troubles, while not yielding to the ordinary forms of treatment, either magnetic, mental or medicinal, respond promptly to Vitaopathy. I have treated many cases exactly like yours. This method is original with me, being the result of years of study and experience. It is certain in its effects and never fails to bring about immediate and satisfactory results. My staff of specialists have spent years in treating such cases as yours in the ordinary practice of medicine. They are now devoting their entire time to the application of Vitaopathy to such cases, and the results are truly marvelous.

"If you allow me to take up the treatment of your case, I will do so with every confidence of effecting a final cure. I have hundreds of similar cases under treatment, all testifying to the marvelous benefits received. As a reasonable person, you know that with the experience gained in treating so many similar cases, it is natural for me to understand such better than the ordinary physician who, perhaps, has only a few cases each year. 'Practice makes perfect,' and it applies to the treatment of diseases as well as any other line. The more we practice the more we learn, and the larger percentage of cures we make. I have the advantage of treating tens of thousands annually, while the ordinary physician treats but a few hundred. Remember, that my treatment is especially prepared for each individual case. If you went to specialists, such as I have in my employ, they would charge you from $10 to $20 for an examination. I give you the attention of these specialists free. They have made a life study of certain diseases which their specialty covers, and if you place your case in my hands, it will have the very vest attention that recognized specialists can give it. They will study your case continually and offer suggestions which will aid the treatment in curing you in the shortest possible space of time. . . .

"For financial responsibility, honesty and integrity, I refer you to the Flour City National Bank, of this city. For an immediate reference relative to the treatment, I invite you to write to Rev. Joseph Mills, Mankato, Kan., also to D. L. d'Elysee, Notary Public of Samoath, Ill. I shall be pleased to furnish other references if you desire them. At the low rate I charge you can not afford to be without this treatment—without all the expert attention I give you. If the druggists in your city were able to fill the prescriptions which I have filled for you at my laboratory, their price for the remedies, alone, would be more than I ask for the entire treatment. The cost of treatment is $5 per month. Is there a physician in your city who could afford to treat you at this rate, giving you treatments twice a day as I do? Certainly there is not, and I am

enabled to do this only because I treat so many cases that I can keep my specialists profitably employed all the time. . . .

"You can not afford to miss this opportunity. Remember that I have cured hundreds of cases that have been regarded as hopeless—cured them after all other methods had failed. Whether you take my treatment or not, I should like to hear from you . I will be glad to correspond with you relative to your case. I have the interest of humanity at heart aside from any financial consideration.

"If you will order a month's treatment within fifteen days from the date of this letter, I will give you my new course of instruction in Magnetic Healing absolutely free. The price of this course is $3. In order to introduce it in your community I have decided to give it to you free of charge. All I ask in return is, for you to recommend it to your friends whom you think might be interested. It is the best course in magnetic healing on the market. I guarantee this. I am sure you will be greatly pleased with it. I should like to hear from you by return mail, so that I may know you have received this communication.

"Institute of Physicians and Surgeons.

"THOS. F. ADKIN, President."

The letter quoted above is ornamented with a fine pictured letterhead, with the following artistically printed: "Prof. Thomas F. Adkin, Pres., Originator of the Adkin Vitaepathic Treatment; L. B. Hawley, M.D., Chief Consulting Surgeon and Expert Diagnostician; Prof. S. A. Newman, Chief Chemist; Prof. Chas. B. Westover, Secretary and Clinical Director. New York Institute of Physicians and Surgeons and the Thomas F. Adkin Sanatorium. Chartered by the State of New York. Address all communications relative to treatment to Thomas F. Adkin, Pres. Paid up Capital $50,000.00. All Human Diseases Successfully Treated by the Adkin Method."—EDITOR.

# The Public Service.

## Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., Dec. 26, 1901, to Jan. 8, 1902:

James T. Arwine, contract surgeon, from Fort Liscum, Alaska, to San Francisco, Cal., for assignment in the Department of California.

Dallas Bache, colonel, assistant surgeon-general, retired Jan. 1, 1902, at his own request, he having served more than forty years.

David Baker, lieutenant, asst.-surgeon, U. S. A., previous orders so amended as to direct him to report for duty to the commanding officer, Fort Leavenworth, Kan.

Cosam J. Bartlett, lieutenant, asst.-surgeon, U. S. A., from the general Hospital, Presidio of San Francisco, Cal., to Fort Liscum, Alaska.

Robert C. Eve, contract surgeon, from Fort Sam Houston, Tex., to San Francisco, Cal., en route for assignment in the Division of the Philippines.

Charles B. Ewing, major, surgeon, U. S. A., from New York City to Fort Preble, Me.

Peter C. Field, lieutenant, asst.-surgeon, U. S. A., from Fort Slocum, N. Y., to Fort Robinson, Neb., for duty at that post.

Ernest W. Fowler, contract surgeon, from Fort Preble, Me., to Fort Terry, N. Y.

Joseph C. Garlington, contract surgeon, from Fort Terry, N. Y., to San Francisco, Cal., en route to the Division of the Philippines.

Charles R. Greenleaf, colonel, assistant surgeon-general, retired Jan. 1, 1902, under the operation of law, he having attained the age of 64 years.

John T. Halsell, contract surgeon, relieved from further duty in the Division of the Philippines and from temporary duty in the General Hospital, Presidio of San Francisco, Cal., for assignment at Fort Sam Houston, Tex.

Thomas Howlett, contract surgeon, from Gilroy, Cal., to San Francisco, Cal., en route to duty in the Division of the Philippines.

Edward H. Jordan, contract surgeon, from Denver, Colo., to San Francisco, Cal., en route to duty in the Division of the Philippines.

Charles F. Kieffer, captain, asst.-surgeon, U. S. A., from duty in the Division of the Philippines to San Francisco, Cal., whence he will report by telegraph to the Adjutant-General of the Army for further orders.

John F. Leeper, contract surgeon, previous orders so amended as to assign him to temporary duty in the Department of California.

Marion F. Marvin, contract surgeon, from Jacksonville, Fla., to San Francisco, Col., en route to the Division of the Philippines.

Charles F. de May, captain, asst.-surgeon, Vols., leave of absence for one month granted.

Frank D. Pease, captain, asst.-surgeon, Vols., leave of absence granted to Jan. 31, 1902, on account of sickness.

William H. Pomeroy, contract surgeon, now at Springfield, Mass., to duty at Springfield Armory, Mass.

David S. Roberts, contract surgeon, member of an examining board at San Antonio, Tex., during the illness of Colonel P. J. A. Cleary, assistant surgeon-general.

Albert H. Simonton, contract surgeon, from Fort Robinson, Neb., to Birmingham, Ala., for annulment of contract.

Albert E. Truby, lieutenant, asst.-surgeon, U. S. A., leave of absence extended.

Harry H. Van Kirk, contract surgeon, from Washington, D. C., to his home at Sunbury, Ohio, for annulment of contract.

## Navy Changes.

Changes in the Medical Corps of the Navy for the week ended January 11:

P. A. Surgeon W. B. Grove, ordered to the *San Francisco*.

P. A. Surgeon W. C. Braisted, detached from the *Topeka*, and ordered to the Naval Hospital, New York.

Asst.-Surgeon P. M. Furlong, ordered to Vicksburg, Miss., for duty with recruiting rendezvous; and upon completion of that duty, proceed to the *Topeka*.

Asst.-Surgeon E. O. Huntington, detached from the *Columbia* and ordered to the Naval Hospital, New York.

Asst.-Surgeon F. L. Benton, detached from the Naval Hospital, New York and ordered to the *Columbia*.

Surgeon C. F. Stokes, detached from the *Solace*, and ordered to duty at Guam, L. I.

Surgeon F. A. Hesler, ordered to remain on duty on the Asiatic Station.

Medical Inspector W. A. McClurg, detached from the U. S. T. S. *Constellation*, and ordered home to hold himself in readiness for sea duty.

Medical Inspector J. R. Waggener, ordered to the U. S. T. S. *Constellation*.

## Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service for the 7 days ended Jan. 9, 1902:

Surgeon Fairfax Irwin, bureau telegram of Dec. 27, 1901, granting leave of absence for seven days, amended so that said leave shall be for five days.

Surgeon H. R. Carter, leave of absence for ten days granted, by Bureau letter of Dec. 26, 1901, revoked.

Surgeon P. C. Kalloch, to proceed to Portland, Me., and assume charge of the quarantine service at that port.

Surgeon J. J. Kinyoun, six days' leave of absence from Jan. 6, 1902, under paragraph 179 of the regulations.

A. A. Surgeon E. F. McConnell, granted leave of absence for thirty days from December 24.

A. A. Surgeon J. N. Maceo, granted leave of absence for thirty days from December 17.

A. A. Surgeon C. F. Rideout, granted leave of absence for ten days from January 2.

## Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended January 11, 1902:

SMALLPOX—UNITED STATES.

California: San Francisco, Dec. 22-29, 2 cases.
Indiana: Evansville, Dec. 22-Jan. 4, 3 cases.
Iowa: Clinton, Dec. 27-Jan. 4, 1 case.
Louisiana: New Orleans, Dec. 27-Jan 4, 1 case.
Massachusetts: Blackstone, Jan. 1-8, 2 cases; Boston, Dec. 27-Jan. 4, 24 cases, 6 deaths; Brockton, Dec. 27-Jan 4, 1 case; Cambridge, Dec. 27-Jan. 4, 2 cases; Chelsea, Dec. 27-Jan. 4, 1 case; Lowell, Dec. 27-Jan. 4, 4 cases; Medford, Dec. 27-Jan. 4, 2 cases; Newton, Dec. 27-Jan. 4, 1 case; Quincy, Dec. 27-Jan. 4, 1 case; Somerville, Dec. 27- Jan. 4, 1 case.
Nebraska: Omaha, Dec. 27-Jan 4, 29 cases.
New Hampshire: Nashua, Dec. 27-Jan. 4, 2 cases.
New Jersey: Camden, Dec. 27-Jan. 4, 19 cases; Jersey City, Dec. 22-29, 1 death; Newark, Dec. 27-Jan. 4, 31 cases, 1 death.
New York: New York, Dec. 27-Jan. 4, 8 cases, 2 deaths.
Ohio: Cincinnati, Dec. 28-Jan. 3, 9 cases; Cleveland, Dec. 27-Jan. 4, 1 case; Youngstown, Dec. 21-28, 1 case.
Pennsylvania: Dec. 27-Jan. 4, Allegheny, 2 cases; Norristown, 1 case, 1 death; Philadelphia, 90 cases, 16 deaths.
South Carolina: Greenville, Dec. 27-Jan. 4, 1 case.
Tennessee: Memphis, Dec. 27-Jan. 4, 2 cases.
Vermont: Burlington, Dec. 21-28, 30 cases.
Virginia: Roanoke, Dec. 24-31, 41 cases.
Washington: Tacoma, Dec. 22-29, 2 cases.
Wisconsin: Green Bay, Dec. 29-Jan. 5, 5 cases, 1 death; Milwaukee, Dec. 29-Jan. 4, 1 case.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Oct. 1-31, 61 deaths.
Austria: Prague, Dec. 7-14, 16 cases.
Belgium: Antwerp, Dec. 7-21, 4 cases, 1 death; Ghent, Dec. 14-21, 4 cases.
Brazil: Rio de Janeiro, Nov. 28-Dec. 8, 83 deaths.
Canada: Halifax, Nov. 22-Jan. 4, 15 cases; Quebec, Dec. 28-Jan. 4, 21 cases.
Colombia: Cartagena, Dec. 16-22, 3 deaths.
France: Paris, Dec. 14-21, 6 deaths.
Great Britain: Liverpool, Dec. 7-21, 3 cases; London, Dec. 14-21, 538 cases, 32 deaths.
India: Calcutta, Nov. 23-Dec. 7, 2 deaths; Madras, Nov. 23-Dec. 6, 3 deaths.
Italy: Naples, Dec. 7-14, 16 cases, 1 death.
Russia: Odessa, Dec. 7-14, 3 cases, 1 death; St. Petersburg, Dec. 7-14, 5 cases, 1 death.
Spain: Corunna, Dec. 14-21, 2 deaths.
Uruguay: Montevideo, Oct. 25-Dec. 9, 108 cases, 5 deaths.

YELLOW FEVER.

Brazil: Bahia, Nov. 30, Dec. 7, 1 case, 1 death; Rio de Janeiro, Nov. 25-Dec. 8, 4 deaths.
Mexico: Vera Cruz, Dec. 21-28, 6 cases, 2 deaths.
West Indies: Saint Lucia, Dec. 9, prevalent.

CHOLERA.

India: Bombay, Nov. 26-Dec. 3, 5 deaths; Calcutta, Nov. 23-Dec. 7, 79 deaths.
Java: Batavia, Nov. 8-30, 40 cases, 28 deaths.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, Nov. 23-Dec. 5, 11 deaths.
India: Bombay, Nov. 23-Dec. 10, 238 deaths; Calcutta, Nov. 23-Dec. 7, 50 deaths; Karachi, Nov. 23-Dec. 8, 169 cases, 155 deaths.
Mauritius: Dec. 5-12, 42 cases, 25 deaths.
Russia: Batoum, Dec. 12, 1 case, suspect.
South Africa: Port Elizabeth, Nov. 30-Dec. 7, 1 case; Massell Bay, Nov. 30-Dec. 7, 2 cases.